Tech in the City

STARTING YOUR CAREER IN THE TECH INDUSTRY

How to gain a foothold in the digital economy as an absolute beginner

ABOUT US

The goal of non-profit association Tech in the City e.V. is to use networking and information to attract more talent to the digital sector. The shortage of skilled workers in the areas of web development, online marketing, cloud computing and system administration is at an all-time high and is slowing the growth of the digital economy. To counteract this, for more than five years we have been connecting all of the parties involved: companies, industry representatives, job centres and employment agencies, as well as the potential new talents. We stage events at which we inform and train the staff of employment agencies and job centres, along with the potential workforce and IT newcomers, about job profiles, starting prospects and educational opportunities.

OUR FORMATS

PRESENTATIONS
(Career Studies, Digital Transformation, Online Marketing, Cloud Computing...)

WORKSHOPS
(Programming, Digital Application Process, Orientation, Improving Digital Skills, Women in IT...)

FURTHER EDUCATION FAIR WITH PROVIDERS OF IT COURSES

INFO EVENT FOR TECH NEWBIES (every Thursday, 5.00 – 6.00 pm, online)

DIGITAL CAREER DAY: Career and networking event
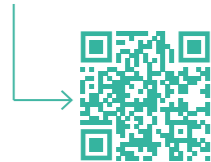
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"IT'S NO LONGER A QUESTION OF INTEREST, BUT ONE OF THE NECESSITY OF HAVING SKILLS IN THE DIGITAL FIELD."

Karin Erb, talent compass consultant at KOBRA Berlin

INTRODUCTION

Every change requires a good deal of courage to start with. Especially so when you're interested in a career in IT. You're wondering if you've even got what it takes for the tech industry?

Here's the good news: **In IT, a whole range of very different characters are wanted. Creatives, communication professionals and organisational talents, but also strategic thinkers, people with an eye for detail, and team players.** It's guaranteed that you'll be able to use your personal strengths in one of the many tech jobs. **Now what counts is finding the right path to your IT career.**

The tech industry has its own particular attractions. High salaries, no uncomfortable dress codes, the obligatory table football in the office, options to work from home or location-independent working, flexible working hours, colleagues from all over the world, flat hierarchies and short decision paths – just some of the perks awaiting you.

But instead of applying, many people think: "I'll never make it." The reasons: a lack of skills and no network. Sure, the tech world can be daunting. Nowhere else is so much jargon thrown around, and you hear talk of financing rounds[1] for amounts so big they make your head spin.

"An exciting world," you hear yourself think, "but without a qualification in IT and the right connections – how could I ever get a job there?"

WE'LL SHOW YOU HOW IT CAN BE DONE.

"You can't always get what you want", according to the Rolling Stones. And of course you can throw in the towel right there. Or you keep listening, because then you hear: "But if you try sometimes, well you might find / You get what you need." So hang onto your towel and don't be intimidated. **Because no matter what job you're in now, it's totally feasible for you to start a career in the tech industry.**

Why? It's simple: Because in the future there won't be enough qualified people to fill the growing number of technology jobs. In 2022 there were 137,000 unfilled positions[2] in the IT sector in Germany alone. The number of jobs is also growing faster than in any other industry, with the IT sector being the biggest industrial employer in Germany.[3] And the digital economy job engine is still booming. In 2022, despite the pandemic around 40,000 new jobs were created. Are you wondering why the tech

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[1] A financing round is when investors increase the capital contributions to a company.

[2+3] Source: https://www.bitkom.org/Presse/Presseinformation/Bitkom-Branche-ist-erstmals-groesster- Industrie-Arbeitgeber.html.

industry in particular has such high demand for skilled workers? The answer is twofold: On the one hand, the market keeps growing in this sector. And on the other hand, until a few years ago many tech job profiles didn't even exist. Twenty, thirty years ago nobody knew anything about online marketing – and today practically every company needs it. The education system can't keep up with the rapid development of the tech industry. Classic educational institutions are still not adept at producing skilled workers for these sectors. This is going to change in the next few years. But for the moment there is a huge gap between the mass of job offers on the one side, and the lack of skilled workers on the other. And this is precisely where you'll find your pot of gold at the end of the rainbow if you want to switch careers and move to the tech industry: **The time is now!**

THE IT INDUSTRY IS SO DIVERSE

IT is run by old white men?! And the people working there are all nerds that spend the whole night programming in their basements?! Far from it! The digital industry is characterised by internationality and diversity. Many companies look for their employees abroad and help them with their visa paperwork and the move to a new country. Some also offer in-house German courses. According to a 2021 study of the German Start-up Association, on average 28% of employees come from countries other than Germany[4]. This means a great accumulation of interculturality and a lot of innovative spirit! In fact, the bigger a start-up gets, the more important its foreign employees become. Integration is made easier by many workplaces having English as the second company language.

What does this mean for you? No matter what your background is, no matter if you've been in Germany for a long time or just moved here: **There's a place for you in IT.**

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[4] *Source: https://startupverband.de/fileadmin/startupverband/mediaarchiv/research/dsm/dsm_2021.pdf (p.18).*

THERE'S A PLACE FOR YOU IN IT.

Sounds too good to be true? Tech companies definitely don't back diversity and tolerance purely for altruistic reasons.

WE NEED MORE WOMEN IN TECH!

Programming is mainly a man's thing? Far from it! Have you ever heard of Ada Lovelace, Grace Hopper or Margaret Hamilton? All were tech pioneers and way ahead of their time. Among the reasons why IT is such a man's domain today is the fact that in the 1980s,

The fact that teams with a diverse make-up produce better results[5] also plays a role.

the marketing strategies of big tech companies were aimed at a male audience. Another reason is an education based on traditional gender roles ("boys are more technically oriented, girls more socially") – end of story.

The proportion of women in the **IT industry** is a mere **17%.** The figure for **computer science studies** is not much better: **25%**. As for IT **vocational training**, here there's even more room for improvement: only **7%** of trainees are women[6].

17%
INDUSTRY

25%
STUDIES

7%
TRAINING

But hey – no reason to be discouraged! This actually indicates the opportunities that await you. A woman who can program, for example, or who knows all about databases, will be welcomed with open arms in the job market. **This is because companies are now well aware that they need diverse perspectives within their teams in order to have long-term success.**
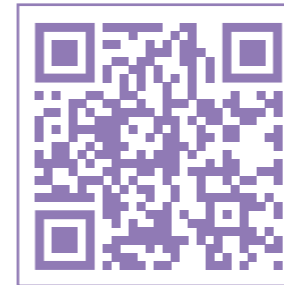
You want to know more about the opportunities for starting in IT? Tech in the City e.V. regularly stages **Women in IT events** that will encourage you and connect you with the network – designed by women for women. You'll find further information and event dates on our website.

NEW WORK: FLEXIBLE WORKING HOURS, WORK-LIFE BALANCE AND MORE

The coronavirus pandemic hit a lot of industries hard. Many companies had to adjust to a completely new work routine. This was not the case in the IT world as many innovations were already common practice before COVID-19. "New work" – the new way of working in the global, digital era – had been established for many years. The concept's central values are self-reliance, freedom, and participation in the community. This "new work" is increasingly doing

away with the classic division of work, rigid hierarchies and fixed time structures. An indicator of today's work culture in digital companies is flexibility: whether you have to collect your child from day care, want to have a home office, share a full-time job, or even dream of working from somewhere else for a while – not just since the pandemic have all these things been possible in this working environment.

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[5] *Source: https://www.google.com/url?q=https://www.bitkom.org/Presse/Presseinformation/Digitalunternehmen- erfolgreicher-dank-Diversitaet&sa=D&source=docs&ust=1668090248152598&usg=AOvVaw0RLzPDaPRLHseEsxgo6f14.*

[6] *Source: https://lit.eco.de/whitepaper-download-frauen-in-tech/ https://www.bitkom.org/Presse/Presseinformation/Informatik-Frauenanteil.*

FLEXIBLE WORKING HOURS & WORK-LIFE BALANCE.

No sweeping statements can be made here, of course. Salaries depend on a variety of factors, e.g. on the sector in which you specialize, how much know-how you already have, or which German state you live in.

We've compiled the **average salaries for various IT jobs** that we'll be presenting to you in detail later on[7]:

Ø 3 931 € gross	Ø 3 516 € gross	Ø 3 527 € gross	Ø 4 283 € gross
Web Development	Online Marketing	System Administration	Cloud Computing
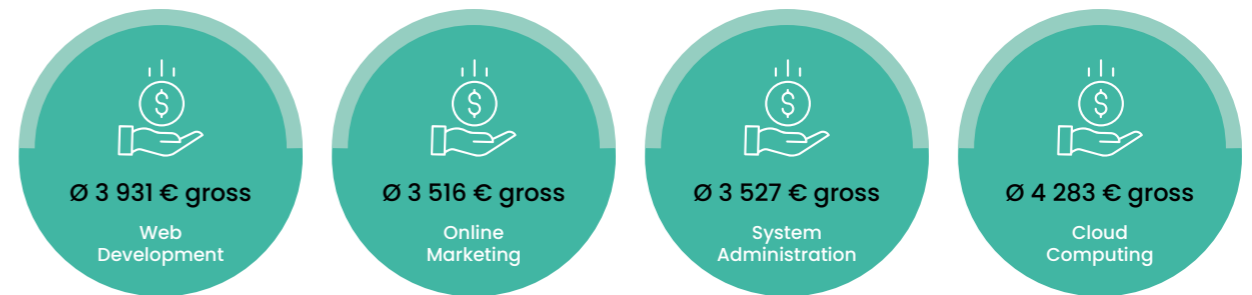
WHAT DO YOU HAVE TO DO?
ACQUIRE THE SKILLS THAT YOU NEED. RIGHT NOW!

You're wondering what skills these are exactly? Then read on. In this brochure we provide you with a comprehensive overview of what working in the tech industry is all about. This includes four of the most sought-after job profiles in the tech scene, and the skills you need to land these jobs. Also: three steps for your career change to the IT industry.

LET'S GET STARTED!

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[7] *Source for web development: https://www.absolventa.de/jobs/channel/webentwicklung/thema/gehalt.; Source for system administration: https://www.absolventa.de/jobs/channel/webentwicklung/thema/gehalt; Source for cloud computing: https://www.stepstone.de/gehalt/Consultant-Cloud-Computing.html;Source for online marketing: https://www.campusjaeger.de/karriereguide/gehalt/online-marketing- manager-gehalt#gehalt.*

"IDEAS ARE USELESS UNLESS USED."

Theodore Levitt, Professor at Harvard Business School

CHAPTER 1

BUSINESS WITHOUT THE TECH INDUSTRY?
IT HARDLY EXISTS ANY MORE

When we think about a career in the tech industry, it's usually the big players[8] in the start-up scene that occur to us: Amazon, eBay, Facebook, YouTube, Google and many others.

However, the truth is that the tech industry can no longer be separated from the rest of the business world, nor from NGOs, politics and science. Just think: What company doesn't have a website today? Which NGO or political party is without a social media presence? What mail-order business doesn't have an online shop? There is hardly a service or service provider without corresponding software or apps.

Are you looking for a meaningful job and the chance to make the world a bit better? Then the tech industry is the place for you. Organisations such as Greenpeace or "Brot für die Welt" are always looking for online marketing managers for campaigns, or developers to program donation platforms, for example. The tech jargon for this concept is "social business" (companies whose purpose is to solve social problems).

For you, this means that you're holding all the cards. There's absolutely no need for you to limit your career ambitions to start-ups or tech strongholds[9]. If the hectic start-up world is not your thing, no problem – established companies are also looking for tech talents.
Whether you live in London, Düsseldorf, Barcelona, New York or in the countryside, these companies are waiting for new talented people like you. The right attitude, suitable skills and a strong portfolio will open up a whole range of opportunities for you.

However, first you need to know which job profiles are the most sought-after. Then you can decide which job suits you best.

We're not going to delude you: to get an interview and then a job, you need suitable skills and a professional portfolio. There's no getting around this. The good news is that you can acquire everything you need in a few months. How exactly? We'll tell you this in the last section of this brochure.

ALRIGHT, CURIOUS NOW?
THEN LET'S GO!

[8] *Companies that are extremely successful, and that everyone knows.*
[9] *Cities in which the tech industry has a big presence (e.g. Berlin or London).*

CHAPTER 2

FOUR SOUGHT-AFTER JOB PROFILES IN THE TECH INDUSTRY

We won't be able to list for you here all of the job opportunities that IT has to offer. However, we'll give you a closer look at those job profiles that fulfill the following criteria:

1. They're suitable for newcomers and those switching to or returning to IT.
2. They're in demand and are always needed.

INTRODUCING FOUR OF THE MOST SOUGHT-AFTER TECH JOB PROFILES:

1. Web Development
2. System Administration
3. Cloud Computing
4. Online Marketing

In the following sections we'll inform you about each tech job profile in detail and explain what tasks await you, which skills you require for the job, and what career prospects it holds.

WEB DEVELOPMENT

THE JOB

Web developers program websites and ensure that they work the way they should. The basis of every website and every online shop, of blogs, social networks, apps and video platforms, is the code. This code is written by web developers. Practically every company needs websites and apps. This is why web development is one of the most popular areas of programming.

YOUR TASKS

Web development is not just web development. There are many programming languages, and there are two basic types of web development: frontend and backend. These refer to the different ends of a website or application.

In frontend development, you're responsible for how the website looks in the browser, ensuring that all the texts, buttons, videos and images are in the right place, and all the content is coordinated. The backend, on the other hand, ensures that the website is connected to a database and does exactly what the users expect. So, here you look after the technology in the background of a website.

SKILLS THAT YOU NEED

If you want to become a web developer, you have to be proficient in programming languages. That is, you have to be able to code. There are a lot of programming languages, but don't worry, you don't have to be proficient in all of them. Depending on whether you want to work in the frontend or the backend, you should start with these:

- As a frontend developer you should start with the languages HTML and CSS. You need these to create a basic, static website. The next step involves the scripting language JavaScript – if you want to develop your skills further in the interactive, dynamic field of animations, games and apps.

- If you're more interested in the backend, i.e. in the "code behind the code", you'll need to get acquainted with programming languages like Java, PHP and Python. You need these, for example, for websites with high visitor numbers (high traffic) or for other special requirements that use websites and applications.

YOUR CAREER PROSPECTS

The tech industry and programming languages are continually evolving. For you, this means that there's always the opportunity to keep adding to your skills, or to specialise. Small and large companies, governments, universities, non-profit organisations – as a web developer you're needed practically everywhere. So your career prospects are great.

A possible career path for you: You start with frontend development, then tackle backend development, and finally you've mastered both and are able to implement websites and applications from start to finish, from the interface to the database. This is known as "full stack" or "full stack development". You can also get started in app development, take on product management – or work your way up to management level.

THE QUALITIES OF THE WEB DEVELOPER

Concentration and the ability to focus
Especially when working from home, you have to be able to manage your time effectively.

Collaboration skills
Web developers always work together with the whole team, so they need good communication skills.

Creativity
Good web developers know that there are different ways to solve a problem, especially when programming.

An eye for detail
Web developers who only look at the big picture can easily overlook small errors and problems. An eye for detail enables you to take in all facets of a task.

CARSTEN HENNIG
SOFTWARE ENGINEER AT WHITEPAPER ID

"I was a chief editor in international trade media in the hotel industry for 20 years and founded a news channel for hotel management. Although I worked with multimedia content such as WordPress in this field, it was "only" as an editor. As technological expertise became increasingly important, I realised that I had to make a switch. The coronavirus pandemic was a definite trigger for my career change, though an unwanted one. I used the crisis as an opportunity for intensive further education.

I was registered with the employment agency for a short time, where my advisor and I had a look at education vouchers for the programming sector. Just 2 days later I started a preparatory course. The course was very good for orientation purposes and for making a final decision on whether to carry on. My goal was clear, so I moved seamlessly into further training at the Digital Career Institute, which took about a year. Daily, concentrated studying after so many years of hectic editorial work was the first big challenge, but I mastered it. What I value about the IT industry is that it's diverse, very complex and family-friendly – although naturally you have to work hard. But the cliché of the IT nerd sitting next to a mountain of empty pizza boxes is nonsense."

SYSTEM ADMINISTRATION

THE JOB

You enjoy tinkering with computers and you're the first person that acquaintances and family members think of when they're setting up or maintaining their PCs or smartphones? In that case, a career in system administration, or sysadmin, is just the one for you.

Practically every company, regardless of the industry, now needs someone who is solely dedicated to assisting the team when technical problems and questions arise. Sysadmins support the other employees and enable them to work smoothly. They make sure that the office technology is working as it should and as it's needed.

YOUR TASKS

System administration can be seen as a kind of digital caretaking. Are there problems with the wireless network? Is the security software updated and the firewall[10] intact? Are there fresh backups[11] of all the important databases? Is the VPN[12] working on all company PCs?

As sysadmin you manage the purchasing of required hardware and software. If your colleagues are stuck, you're there to help and advise, resolving any problems or difficulties. You also ensure that employees get access to the programs they require, set up accounts, and know where to find the adapter for the MacBooks.

SKILLS THAT YOU NEED

System administrators are in continuous communication with their colleagues. For this reason, you'll need to show a lot of team spirit and openness. As a kind of IT firefighter, because you're responsible for solving problems in the company network, your priorities can change very quickly in your day-to-day work. When there are errors to be resolved, you have the required technical know-how (or you know how to get it), e.g. relating to servers, networks and the standard operating systems.

You must also realize that looking after an entire company network requires great awareness of one's responsibilities and a talent for organization. It's also very useful to have a healthy dose of "helper syndrome" and enjoy puzzling out the causes of errors. You should also be flexible and resilient, and not be shocked at the idea of working the occasional evening or weekend.

YOUR CAREER PROSPECTS

With the spread of digitisation within companies, it is increasingly important for day-to-day work with technical devices to run smoothly. Mobile working is also increasingly important as many people want to be able to work more flexibly. At the same time, it must be ensured that the day-to-day business runs smoothly, and that communication on company documents is secure. This is the background to the future of the sysadmin. Thus, by furthering your education and specializing in specific systems you can secure your position in this continuously changing job market. The requirements of laws such as the GDPR[13] are also giving rise to exciting new tasks.

THE QUALITIES OF SYSTEM ADMINISTRATOR

Management
Designing and setting up an IT infrastructure; looking after the company network and the clients[14] that are used. Administrating and updating all devices, systems and clients, as well as adding new ones.

Communication
Briefing the team on the company's IT structure. Clear communication of knowledge, including to non-tech colleagues.

Problem solving
Identifying problems early and finding approaches to solve them.

Security awareness
Setting the network up securely and removing weaknesses. Being up to date on the latest attack methods and implementing this know-how in the security architecture.

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[10] *A firewall is a security system that protects a computer network or an individual computer from unwanted network access.*
[11] *A backup secures data as a copy at a different storage location. It can thus be restored in the event that the original is lost.*
[12] *An intranet is a computer network within an organization. Only specific persons, e.g. the employees of a company, have access to it via closed VPN access.*

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[13] *The General Data Protection Regulation (GDPR) is a European Union directive that standardized the rules for the processing of personal data by most data processors, both private and public, throughout the EU.*
[14] *Refers to a program executed on the terminal device of a network that communicates with a server.*

STREAMING PLATFORMS PROVIDE THEIR DATA VIA CLOUDS.

CLOUD COMPUTING

THE JOB

You enjoy streaming series or listening to new releases from your favourite bands on Spotify and Deezer? Have you ever thought about how these products are just one click away at all times, day and night? A little time travel: in the past, most people stored their music on an MP3 player, and when the 2, 4 or 8 gigabytes were full, a new device was needed. Today, practically the entire world of music is available to you without the need for memory space on your device. This is because streaming platforms provide their data via clouds. So, you can see that you already come into contact with this topic as you go about your day.

There's a famous German song whose title translates as **"Above the clouds there must be unlimited freedom"**.
This is also true for the IT cloud and its vast flexibility.
Behind it is a virtual storage location in which information is stored peripherally and can be accessed from all over the world. The best-known services are **Apple iCloud**, **Google Drive**, **Microsoft Azure** or **Amazon Web Services.**

YOUR TASKS

Simply put: without cloud computing there is no digitisation. You're responsible for setting up and maintaining the IT infrastructure. One often refers to cloud architects or cloud engineers.
In your day-to-day work you deal with so-called cloud services. These encompass servers, memory capacities, networks, software and databases. You set up virtual workstations that make data and programs available from everywhere, enabling people to work from all over the world.
The cloud works like a construction kit that you are continuously modifying and extending. Your tasks include connecting systems or servers. You're also responsible for updates that ensure the systems run smoothly. Together with other departments you work on developing new use cases[15], thus growing the product portfolio.

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[15] A use case documents an interaction between user and system. This is a way of defining and testing the purpose of a product.

SKILLS THAT YOU NEED

You learn about new topics and cloud applications quickly and reliably. You also communicate the latest system modifications transparently and understandably to your team. You are adept at agile project management and have excellent self-organisation skills. After all, you are managing valuable, sensitive data.

You know the cloud's weaknesses and work continuously on resolving them. You make backups of the systems at regular intervals and save everything in case of an emergency. You also respond quickly and prudently to new circumstances. If a server crashes, you remain calm and get everything running again.

Additionally, dealing with databases such as SQL is a basic skill for you, and you have the necessary know-how relating to VPN access to the intranet[16].

YOUR CAREER PROSPECTS

Amazon Web Services (AWS) is one of the most popular cloud providers. Many companies are looking for trained personnel with AWS skills. Being an "AWS Certified Cloud Practitioner" can open doors here.

More and more companies are using cloud solutions to save costs and resources. New business models such as SaaS[17], IaaS[18] or PaaS[19] are going to play an even bigger role in the future. So, as a cloud engineer or cloud architect, you're going to have great opportunities on the job market.

You have the perspective of working your way up to a management position, e.g. leading the entire cloud team. This would involve coordinating upcoming projects and monitoring the budget.

Solution orientation
In emergencies: quickly preparing a plan B, informing everyone involved, and quickly and reliably restoring the servers and the memory spaces.

Data protection
Securing the systems, optimising the cloud solutions, and training the users.

Service awareness
Considering customer requests, communicating clearly with potentially non-tech people, and presenting cloud solutions to customers.

Agile mindset
Responding to changing framework conditions and being prepared to modify your own working methods.

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[16] *An intranet is a computer network within an organisation. Only specific persons, e.g. the employees of a company, have access to it via closed VPN access.*
[17] *SaaS stands for Software as a Service and means that an external provider manages software. It removes the need for customers (e.g. companies) to procure or install programs. The software is accessed via a cloud or the internet.*
[18] *With IaaS (Infrastructure as a Service), a cloud provider makes services available that would otherwise have to be provided by the company's own data centre, such as servers and memory and network hardware. For many companies, this is easier to manage and reduces costs.*
[19] *While IaaS only provides the infrastructure, PaaS (Platform as a Service) goes a step further by offering useful tools as well, ranging from a development environment to apps and programs.*

ONLINE MARKETING

THE JOB

Acquiring website visitors and prospective buyers, converting them into users and customers, and keeping them – these are the main tasks in online marketing. This job discipline includes, among other things, search engine marketing, display marketing[20], social media and email marketing. Online marketing is classic advertising with new methods, on digital channels and with the related technical expertise. The digital world enables effectiveness measurements in real time, and fast responses and rethinking are also necessary. The goal is a healthy RoI[21].

YOUR TASKS

As an online marketing manager you know a lot about all the communication channels in the digital world, from Facebook, YouTube and Google to apps such as Instagram and TikTok. You are active in, for example, internet searching, advertising, email marketing, social media and content marketing[22]. Your tasks depend on your area of expertise. Most online marketing managers look after marketing campaigns, the performance of these campaigns, and their planning, implementation, evaluation and optimisation.

SKILLS THAT YOU NEED

On the one hand you need to know how all marketing channels interact and affect each other, and on the other hand you should specialise in one or more areas and become a real geek[23]. When you have found out what suits you best, you have to familiarise yourself with all the related tools.
Additionally, you should have sufficient knowledge of the areas of product management, web development, customer service and sales to be able to understand your colleagues' work and have a say – because your activities depend on each other. To advertise optimally, you have to understand every detail of the customer journey[24] and the sales funnel[25] and be able to connect them. This is another place where a lot of data is involved, as you must be able to record and evaluate

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[20] Display marketing refers to classic online advertising, e.g. banners, videos and pop-ups.
[21] RoI = return on investment, the percentage relationship between investment and profit.
[22] With email marketing, commercial messages are sent to current or potential customers. Social media marketing means advertising products or services on social media platforms. Most platforms have their own data analysis tools that enable companies to trace the process, success and reach of campaigns. Content marketing describes the creation and distribution of online material such as videos or social media posts that do not advertise a brand directly but are intended to generate interest in a product or service.
[23] A geek is someone who has such a huge interest in a topic that they're practically a swot. Practically. Maybe a likeable swot.
[24] Refers to the cycle that customers go through before deciding to buy a product.
[25] Refers to all stages of the selling process whereby visitors are converted into paying customers.

IT'S ALL ABOUT MAINTAINING AND MANAGING DIGITAL RELATIONSHIPS.

data, and derive findings from it. Analysis tools such as Google Analytics are helpful here.
A bonus skill: if you have a little knowledge of the frontend programming languages HTML and CSS, you'll have even better opportunities on the job market.

YOUR CAREER PROSPECTS
If you've always got your finger on the pulse, your career and promotion opportunities in online marketing are better than good. You can specialise in one specific marketing area (for example, social media, email marketing, content marketing, SEO[26]) – or you can broaden your interests and aim to be a team leader.

THE QUALITIES OF ONLINE MARKETING MANAGERS

Creativity
Online marketing managers require creativity and imagination in order to develop campaigns. Inbound marketing[27] is THE state-of-the-art marketing method. Therefore the ability to compose good texts is very important.

Social Media
Social Media has changed the way that companies communicate with customers – it's all about maintaining and managing digital relationships.

Performance tracking
All marketing activities and strategies must be traced precisely and their success measured. It is therefore essential to use programs such as Salesforce or Google Analytics. Find out more about Salesforce on page 26.

Overview
Online marketing managers must also know the other company areas, such as the finance department, budgets, sales, customer service or product management.

ALINA HODZODE
FREELANCE ONLINE MARKETING CONSULTANT AT ONE2BLOOM

"Four years ago I became a freelance consultant with one2bloom. I show teams and individual entrepreneurs how they can develop their online channels in digital marketing and their strategy. My customers are mainly social companies or companies with a sustainable approach.
I got started in online marketing without a related course of studies. While I did study economics and audio technology and had technical and logical / strategical knowledge, it was only in my first job that I familiarised myself with the areas of ad serving, XML feeds and display ads.
What I find fascinating about online marketing is the opportunity to capture data and use it profitably, while at the same time working creatively, for example by designing advertisements. (…)
Established companies are often looking for specialists in individual areas such as display, SEM, SEO or CRM. In early-stage start-ups[28] you have the opportunity to do a lot by yourself and work your way into a good position from the start – even as a career changer. Your mindset and your willingness to learn are often more important than work experience."

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[26] SEO stands for search engine optimisation. This refers to different methods that are used to improve the discoverability (of websites or services) in search engines.
[27] The goal of inbound marketing is to be found by customers. It is differentiated from classic marketing that is sent to customers.

[28] Start-ups that have been founded recently and are just getting going.

"CHOOSE A JOB THAT YOU LOVE AND YOU WILL NEVER HAVE TO WORK A DAY IN YOUR LIFE."

Confucius, Chinese philosopher

OTHER JOBS IN THE TECH INDUSTRY

JOBS WITH DIGITAL SKILLS

There are lots of other jobs in the digital industry – including those that will give you an easy entry and help you understand the tech world. Here are some more job profiles that could be your springboard:

Office Manager

You're responsible, for example, for greeting and looking after customers, and you take care of the invoicing, buying materials, data maintenance and correspondence. But you also ensure that the office provides a fantastic working environment. And by the way, should you want to move up, the step from office management to team assistant, feelgood manager[29] or human resources is not a big one – because you already know the company better than practically anybody else.

Customer Care

In customer care or customer service you look after the company's customers and ensure that they are completely satisfied. In digital companies with a strong international presence, a wide range of languages is required, so this is your opportunity if you speak a number of languages or if your mother tongue is not German. With a little ambition you can make your way up the career ladder to head of customer care.
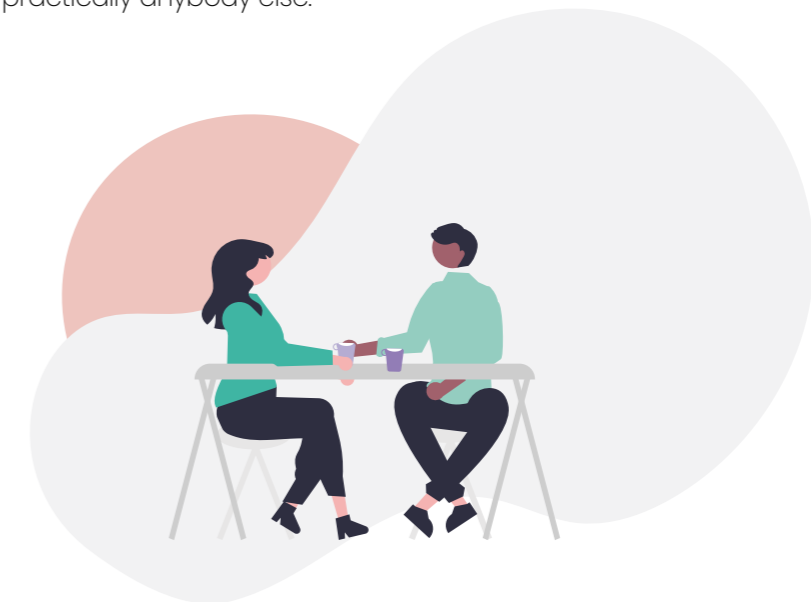
[29] The feelgood manager looks after the well-being of the employees and ensures a constructive working atmosphere.

24

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Human Resources

Today we often speak of digital human resources (HR), as this area is also increasingly digitised. You can see this in the application process, for example, as hardly anyone sends out application portfolios any more – we now use forms, emails or social media platforms. The companies, therefore, are looking for trained personnel with experience of these processes. Performance recording, contract preparation or onboardings[30] are also often done online now. If you've already got some experience in labour law or recruiting, you've got a particularly good chance of landing your dream job.

Salesforce Consultant

This job is at the interface between sales and IT. Salesforce is a cloud solution for Customer Relationship Management (CRM[31]) and is one of the most popular programs worldwide in the field of sales. It offers a wide range of tools for customer management and can be adjusted to different requirements. Accordingly, it requires trained personnel who can perform the configuration. Various departments such as sales, marketing and customer care can work together on one platform. A qualification as a Salesforce Admin or a Salesforce Consultant can be a real game changer here. Find out which further education institutes offer certificates from and with Salesforce. There are also many opportunities for you to further advance yourself in this area.

TECH JOBS

There are also plenty more tech jobs that require a little more previous knowledge of IT. We've put a few profiles together for you that are also very much in demand on the job market.

UX / UI

UI stands for user interface. In this job you ensure that websites, apps or programs can be used intuitively. You know exactly where the stumbling blocks are for users and have suitable solutions at the ready. You've also got an eye for design or experience in media creation, and you look after the layout of a website or application. To be able to make modifications, it's an advantage to have knowledge of frontend programming languages such as JavaScript, CSS or HTML.

UX stands for user experience. You are able to empathise with the respective target group and you know their requirements precisely. With your help, navigating on a website or application is as uncomplicated as possible. You thus create a positive user experience. Knowledge of prototype creation, including wireframes[32], mockups[33] or use cases[34], is of huge importance here.

Data Science

You maintain a clear perspective in the seemingly endless flood of data. With the aid of your work, data-based decisions can be made. To this end, you carry out A/B tests[35] and create dashboards[36], interpret these, and put them into readable formats so that your colleagues are informed about the latest developments relating to the product.

As a data analyst you need analytical skills. You have to play with numbers, scrutinise them critically and be able to understand complex relationships. You're precise, have a real eye for detail, and communicate complex situations in an understandable way.

Your tools are reporting software such as Tableau, Domo, Microsoft Excel and Business Objects, as well as database analysis tools such as Hadoop, SQL and Pandas. You also have basic programming skills, e.g. in MySQL, XML, Python or JavaScript.

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[30] Training in new employees, e.g. in company processes or particular internal procedures, or introducing the individual teams and assigning tasks.
[31] A CRM is a system or program that helps companies to organise, manage and maintain contacts.

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[32] When designing a website or user interface, you must decide what will be displayed where and how. A wireframe is a model that shows how the end result should look.
[33] A mockup is a prototype (e.g. of a website).
[34] A use case documents an interaction between user and system. This is a way of defining and testing the purpose of a product.
[35] A/B tests are used to compare two versions of a website or application in order to determine which version gets better results and, for example, generates more clicks, more purchases or bigger savings.
[36] Dashboards are used to display key figures in a clear way.

VR

#shapingthefuture: In virtual reality (VR) you are creating the digital world of tomorrow! Virtual reality was originally developed for the gaming industry. Today the technology is used in many other areas, such as surgery, flight simulation, mechanical engineering or interior design. Thus, your tasks depend very much on the industry. For example, if you're working in the entertainment industry, you develop games or apps with interactive elements. If, on the other hand, you're in the medical sector, your tasks may include the simulation of operations or the visualisation of prosthetics. Many companies are only just discovering the added value of virtual reality. So, with your ideas you're doing genuinely pioneering work. Previous experience in web development and product management is incredibly important.

Find out more about web development on pages 11 to 13.

Cybersecurity

In a digitised world, the protection of sensitive business data has the highest priority. And in-demand cybersecurity experts are the bouncers here, so to speak. They decide who gets in where, and who gets access to the software. Your tasks include monitoring the IT systems and procuring security software. You're also familiar with security frameworks[37], anti-virus software and data encryption tools (e.g. VeraCrypt, Folder Lock or AxCrypt). You train your colleagues to use systems correctly and respond proactively to security breaches. Your measures prevent cyberattacks and hacking.

*The step of entering a (new) career can be daunting.
But with the right planning it's easier than you think.*

CURIOUS?
THEN ON TO THE NEXT CHAPTER!

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37 *Frameworks show a guideline that helps companies to identify their risks in information security and to close security gaps.*

JEMMA KAMARA
UX DESIGNER

Jemma originally wanted to study sociology. However, she decided on business studies in order to have something reliable to fall back on. She read about UX for the first time in an article and was fascinated by the combination of technology, design and insights into human thinking within this field. After her studies, Jemma first worked as a **Digital Producer** and as a **Product Manager** In these jobs, Jemma discovered precisely this mixture that she originally found so exciting.

Indirectly, Jemma ultimately ended up in exactly that dream job that she had read about years before. As a freelance **UX Designer**, Jemma now helps her clients to design offers tailored to their target groups. Her ample curiosity and empathy are very helpful here – for example, in solving problems but also in creating an attractive design. Even after many years as a professional, Jemma can still be a little daunted by new projects. However, one particularly demanding assignment showed her that she can understand even very difficult topics enough to be able to do her job well.

CHAPTER 3

THREE STEPS FOR A SUCCESSFUL START IN YOUR NEW CAREER

You have your eye on a job in the IT industry that may suit you? Congratulations!
You've now taken the first step into your new professional life.
Now for the planning, because ideally your new career should fulfil you for the rest of your life.

STEP1: FIND OUT EVERYTHING ABOUT YOUR JOB PROFILE

To find out what the job you've chosen actually involves, you must be prepared to take a deep dive into it. Because it would be a real shame if you did everything to train for this job profile – only to discover that you don't like it after all. So get started with research, talking to people, and above all trying things out!

Here are a few tips for you:

01 RESEARCH JOB ADS INTENSIVELY

Visit job portals[38] and look for ads that appeal to you. Read every single job description. Pay attention to the skills that are in demand, the tasks, and information about the companies offering these jobs. Spending a couple of hours working through job ads will give you a pretty good overview of the job market and the relevant companies in this field.

02 GO TO INFORMATION EVENTS AND TALK TO PEOPLE

Get talking to people who are working in the job that you'd like to do. You can meet these people, for instance, at events dealing with the job profile that you're interested in. Platforms such as XING Events, Eventbrite or Meetup – but also Facebook, XING and LinkedIn groups – can help you with this.

Register now:

Our tip: Visit a free info event at Tech in the City e.V.! They're on every Thursday from 5.00 to 6.00 pm online, and they'll provide you with all the info you need for your start in the tech industry.

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[38] General job portals: xing.de, stepstone.de, superheldin.io, monster.de, linkedin.com, indeed.de, angel.co; for tech jobs: stackoverflow.com, get-in-it.de, 4scotty.de, talent.io, truffls.de.

03 FIND A CAREER COACH

Working together with a career coach you can find out which tech direction is suited to your personality and your strengths. For IT-related jobs, for example, your cognitive[39] and computer skills are tested. While determining your linguistic, social and intercultural skills, you work with your coach to decide which roles and professions could suit you.

Our tip: A number of further education institutes offer coaching. When selecting courses, make sure that along with the teaching of content, advice or mentoring is also offered. This can be a real career booster.

04 TAKE PART IN AN ORIENTATION COURSE

You want to be 100% certain about which profession is the right one for you for the years to come – in just a few weeks? Instead of choosing a programme in a mad rush you should take your time and make the right decision. An orientation course can help you with this. You familiarise yourself with the principles and working methods of some of the jobs on offer.

Because basic programming knowledge is important for all of these professions, in the first weeks you should learn the basics of programming. Over the following weeks you try out and test other jobs to see whether you have the right skills for the tasks involved – and above all, whether you enjoy them.

Alongside theoretical input and practical exercises, an orientation course should also help you to get to know companies. This not only gives you a chance to take a look behind the scenes, but you can also talk directly to the HR people and individual teams. This gives you the opportunity to find out more about the day-to-day work or the application processes. You can find orientation courses at the Digital Career Institute (DCI) and coaching on career entry at agil.bz for example.

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[39] *When we talk of a person's cognitive skills we are referring to those activities that are used to process knowledge. They include perception, memory, learning, creativity, reasoning, the use of language and so on.*

CHRISTOPH MENDE
**PARTICIPANT IN THE ORIENTATION COURSE FOR DIGITAL CAREERS AT THE DIGITAL CAREER INSTITUTE (DCI)**

"The last few years I've been working as a study coordinator for pharmaceutical studies. While on the lookout for a new perspective, on my travels in Australia I met various people who were working in the digital economy from abroad. 'Working remotely in the tech industry...this is the future...sounds great,' I thought to myself.

After I returned, a friend told me about DCI. I was delighted, because here I saw the opportunity to move forward with pretty much every area of my life. So I took the first steps towards a tech profession in an orientation course. I was immediately a fan of programming – I really love the learning-by-doing concept. But why web development?

It's simple: The opportunities to develop and advance a medium that I use every day, plus my interest in technical processes and the desire to be able to work in a creative and solution-oriented way, are all unified in this one area."

Register now:
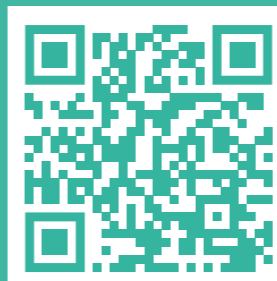
You want more help with your orientation?
Then book a free, non-binding counselling session at Tech in the City e.V. Via an one-on-one talk on the phone or a video call, we'll work out what your next steps could be.

STEP 2: FIND A WAY TO ACQUIRE THE CORRESPONDING SKILLS

Onwards with your career plan. The next step is all about the skills you need for your new job. In short, you have to learn stuff. How you do this is up to you. We'll show you three ways in which you can achieve your goal.

Three ways of acquiring tech skills:

01 SELF-LEARNING: WORKING ON YOUR OWN

Do it yourself! You'll use online videos, books and tutorials for this method, which takes the longest but doesn't cost much. You can set the pace of your study while you continue working in your current job or finance yourself with smaller jobs. The other side of the coin is that you really have to teach yourself everything. When you run into problems there's no one to support you. However, this learning method is optimal for you if you're highly motivated and have a lot of discipline. Of course, for now this means that your free time and weekends are for studying.

Our tip: How many hours per week do you want to study? Prepare a schedule like the one you had at school – and stick to it. You'll get there in the end!

02 GO (BACK) TO UNIVERSITY OR COLLEGE

Academic study followed by a recognised qualification, with a title before or after your name – this looks good on your CV. And the bonus is that at uni you're automatically part of a network of people with the same goal as you. The downside is that this way takes three to five years, and of course you have to cover course fees and living expenses this whole time. So most students have to have some kind of part-time job. And it can take a while for your hard work to pay dividends. However, if a real qualification is important to you, this is probably your best option.

Our tip: Find a well-respected uni or college[40] that's in step with the times and can provide you with state-of-the-art skills.

03 ENROLL IN A PRACTICE-ORIENTED FURTHER EDUCATION PROGRAMME

Further education is a popular way of getting started in IT. It can give you practical know-how within a short time compared to a course of studies or an apprenticeship. The duration of a further education programme depends or whether you can do it full-time or part-time.

With so many providers promising you an IT career, it's not always easy to choose the right one. **Here are some criteria for you to consider when looking for a high-quality, practice-oriented further education programme:**

√

You now know what direction you want your career to move in. For example, if you want to gain a foothold in web development, start looking intensively at the range of offers in this area.

Ask yourself whether the course and its content are really going to prepare you for the profession that you want. Course plans thrown together based on the principle of "a bit of this, a bit of that" are of little use. Instead, the course should be giving you the skills you need to actually be able to work as a web developer after you finish.

√

Will the provider support you in looking for a job? For example, do they have a career service? What help will you receive if everything doesn't work out right away?

√

Another important factor is whether you'll have sufficient time to learn a completely new IT job. Longer programmes of 9 to 14 months can manage this.

A fast-track course along the lines of "Become a full stack developer in just 3 months" sounds appealing, but without previous knowledge this is very unrealistic. Just think: How long did it take you to gain a foothold in your current line of work? This probably didn't happen overnight.

√

Does the teaching plan correspond to the current requirements of companies? Was it perhaps even developed in collaboration with companies? In this case, you can be sure that the skills being taught are also in demand on the job market. And that you're learning from genuine tech experts. What more do you want?

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[40] *Rankings for getting started in the digital economy can be used as a guideline here. We recommend the independent CHE ranking, whose results are published yearly; see https://ranking.zeit.de/che/de/fachinfo/1.*

✓ Are there practical phases with companies, or internships? These can really open doors for you and provide you with valuable contacts in the digital economy. Maybe this will be how you meet your future employer.

✓ Will you have a portfolio at the end that you can use for job interviews? Along with qualifications or certificates, companies also want to see projects that show what you can do. Nobody in IT needs purely theoretical courses!

✓ Is the institute certified? CERTQUA AZAV (accreditation and authorisation regulation for employment promotion) is one of the quality seals that you can look out for. With certified providers, it's possible that the costs may be covered by the employment agency or job centre. This is not guaranteed but always has to be agreed with the responsible contact person (e.g. your placement officer).

✓ Are there integrated language courses? IT is based on communication. You should therefore use the time to improve your German or your English.

✓ Will you find out more about the success stories of course graduates, and about where they're working now? This would show you that the programme generates real success and that you can look forward to similar career opportunities.

✓ What's your gut feeling? You have to feel good and be really enthusiastic about the course. After all, this is about nothing less than your professional future.

These criteria are provided as orientation aids. **So, before you decide, take this checklist and see which further education institute fulfils most of these criteria.**

If you're not sure, book a counselling session at Tech in the City e.V.!

AYHAM KTEASH
PARTICIPANT IN THE ONE-YEAR COURSE IN WEB DEVELOPMENT AT THE DIGITAL CAREER INSTITUTE (DCI)

"My name is Ayham, I'm 22 years old, and I'm from Syria. Before coming to Germany I studied IT in Syria. I've always wanted to be a web developer and web designer.
Since starting the web development course at the **Digital Career Institute** (DCI) in February 2017, my life as a refugee in Germany has changed in many ways. I've learned how to program websites using HTML, CSS and JavaScript. I'm learning JQuery, SASS, Node.js and lots of other exciting stuff in this course. I'm sure it's going to get me a job as a web developer.
It's great that such courses are available in Germany. They can change many people's lives, not least the lives of refugees in Germany."

FRANK ZAHN
CEO OF THE EXOZET AGENCY FOR DIGITAL TRANSFORMATION

" At a hiring event we met a class of graduates from the **DCI**. We were impressed by the knowledge and skills that they had acquired in a course of only nine months. Immediately convinced of their potential, we offered internships to three students. As interns at Exozet they demonstrated that they could combine well-founded programming skills with high motivation and the ability to solve problems quickly. We offered follow-up contracts to all of them and are now very happy to have them in our team!

More about Exozet: exozet.com
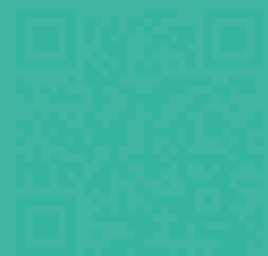
STEP 3: SHOW WHAT YOU CAN DO

01 FORMULATE CONVINCING ARGUMENTS

Why do you want to go down this career path? What excites you about the job profile?

"I just do" is not a great answer. For the HR department, the right motivation is just as important as your skills. Write down good reasons and you'll be convincing at your job interview. Make a list: What skills and experience from your previous jobs or your career path up to now could be useful in your career in the tech industry? (Keywords: communication skills, team-leading qualities, analytical thinking, languages etc.)

WHY DO YOU WANT TO GO DOWN THIS CAREER PATH?

WHAT EXCITES YOU ABOUT THE JOB PROFILE?

Register now:

You want to know more about the digital application process? Then register for one of our free workshops on this topic. On our website you'll find a calendar with all the events scheduled for the coming months.

02 PUT A PORTFOLIO TOGETHER

The day you decide in favour of the tech industry, start working on your portfolio. It doesn't just contain recommendations and your certificates – above all, your portfolio showcases your work samples. By this we mean, for example, websites or online campaigns programmed by you. To this end, you should work on a few projects with friends or fellow students in your spare time. Start small. **Do you want to study at an educational institution?** Then make sure that preparing a portfolio is included in the course content.

CAREER PLATFORMS SUCH AS XING AND LINKEDIN ARE JUST AS IMPORTANT AS A CV.

03 CREATE PROFILES ON CAREER PLATFORMS

These days, up-to-date profiles on career platforms such as XING and LinkedIn are just as important as a CV. Make sure that all of your skills are included in your profile, because recruiters search the portals for the technologies that are in demand. Upload a current photo and link to your personal homepage or your portfolio.

You've chosen web development?

Then you should set up a profile on Github right away. This is the biggest online community for programmers worldwide – for learning, sharing knowledge and advancing one's career.

You want to get into social media marketing?

Then you need more than just a theoretical understanding of YouTube, Instagram, TikTok, Twitter, Facebook and Co. – you should be networking intensively there and posting like a boss.

ANNA FISHMAN
HR BUSINESS PARTNER OF PAUA VENTURES, A VENTURE CAPITAL INVESTOR[41] FOR START-UPS

"As HR Business Partner I support our portfolio companies both with strategic personnel topics and processes and with filling key positions.
I myself entered the HR field laterally, therefore I firmly believe that lateral entry to the tech industry makes a lot of sense – and can actually be advantageous. When you come from another job or any other qualification, you bring along know-how that can be extremely useful in another professional field. Additionally, innovation can occur only when you combine different things with new knowledge. If you always have only the same people with the same basic knowledge brooding on a topic, you're going to be waiting much longer for something revolutionary to happen. (...)
For me, the candidate's personality is more decisive than any university qualifications. I'm looking for that twinkle in their eye, their enthusiasm for a certain topic, and their desire to learn, understand and make something happen. (...)"

[41] A venture capitalist finances budding start-ups with a kind of development aid.

04 BUILD UP A NETWORK

Hardly anything is more important for your career than good old-fashioned connections. Network at your uni or in your training course with students, graduates and teachers. Visit events, look for suitable groups in social networks or on career platforms – and get chatting!

Our tip: Go to events, conferences, career fairs and make contact with employees and companies.

Find out about events in your locality or online at MeetUp.com, XING, Eventbrite or in social media groups. Start mingling! And most importantly, add these new contacts to XING, LinkedIn, Instagram, Facebook or Twitter afterwards in order to stay in touch with them.

Register now:
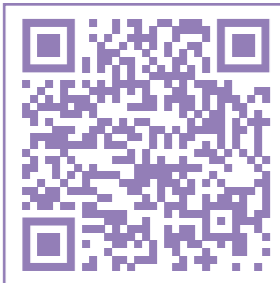
Various newsletters are also useful for keeping you up to date. The Tech in the City e.V. newsletter gives you info about regional events and news from the industry! Some of these events will enable you to make direct contact with potential employers from the IT sector.

As with any other change, there may come a point along the way when you encounter a small or significant obstacle. Listen to us and don't give up! Just don't stop learning, don't stop networking, and keep looking for new ways to achieve your goals. If you're in doubt or unsure about something, then trust your gut instinct – and get in touch with us. We'll be happy to help you.

SO, WHAT'S NEXT?

No matter what you've been doing up to now, we at Tech in the City e.V. have tips, advice and guidelines to enable you to develop your skills in system administration, marketing, web development, cloud computing, or in one of the other tech areas.

For more information on opportunities for starting in IT, contact us:

www.techinthecity.de

fb.com/titc.career

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linkedin.com/company/techinthecity

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info@techinthecity.de

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