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Introduction to IT

Agenda

You will learn:

- What is IT and what problems does IT solve?
- Software Development
- IT Departments
- Team Roles in Software Development
- Support Department
- What are SLA, KPI?

Are there any requirements before studying the topic?

- No requirements

To whom it may concern

- Newcomers who are on the first step to get acquainted with IT industry and our Company.

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Section 1: IT Industry

What is Information Technology (IT)?

Information Technology (IT) is a business sector that deals with computing, including hardware, software, telecommunications and generally anything involved in the transmittal of information or the systems that facilitate communication.

IT Industries

The following are the examples of an information technology industry:

Hardware – The design, manufacturing and marketing of IT hardware such as processors, networking equipment and storage devices;

Software – The development, marketing, implementation and support of software products;

Data Centers – Cloud computing, dedicated servers and other computing services;

Telecom –The delivery of data and communication networks;

Information Security - hardware and software consulting related to IT;

Data Services – provide data in finance, medicine, education, sales, marketing, HR etc.

Artificial Intelligence – platforms for building AI;

Robotics –physical manifestations of computing;

Gaming – Video games and other entertaining virtual environments;

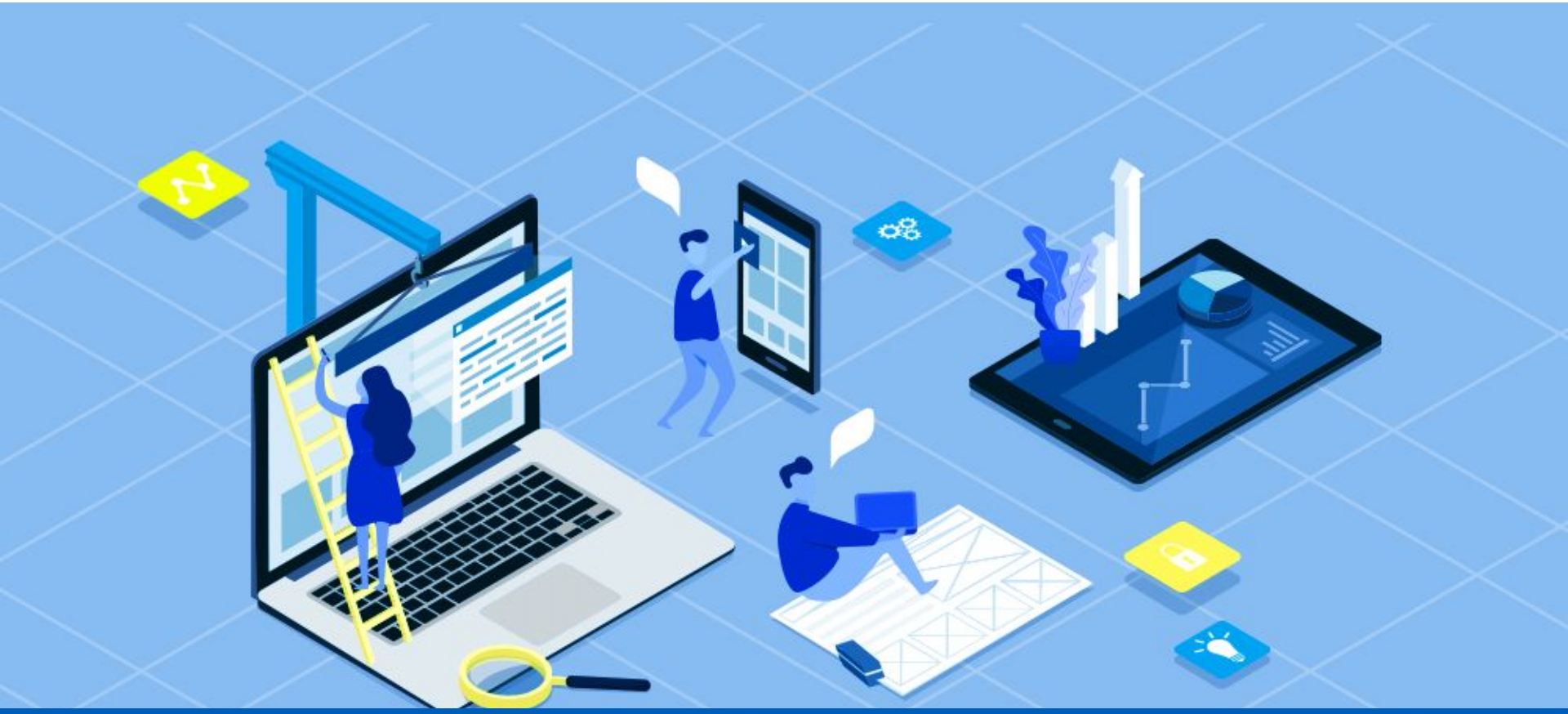
Media – Distribution of informative content;

Ecommerce – digital markets for goods.

Software Development

Software development refers to a set of computer science activities dedicated to the process of creating, designing, deploying and supporting software.

Software itself is the set of instructions or programs that tell a computer what to do. It is independent of hardware and makes computers programmable.



Who's creating software?

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Software development is primarily conducted by programmers, **software engineers and software developers.** These roles interact and overlap, and the dynamics between them vary greatly across development departments and communities. *See **notes** for more information*.

Software Developer vs. Software Engineer

- Collaborating with management, departments,and customers to identify end-user requirements and specifications.
- Designing algorithms and flowcharts to create new software programs and systems.
- Producing efficient and elegant code based on requirements.
- Testing and deploying programs and applications.

- Creating information systems by designing, developing, and installing software solutions.
- Determining operational feasibility by evaluating analysis, problem definition, requirements, solution development, and proposed solutions.
- Developing software solutions by studying information needs, conferring with users, and studying systems flow, data usage, and work processes.

Types of Software Development

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Software development is the core activity of the IT industry and is divided into **10 main types**. These types are as follows:

1. Application Development
2. Web Development
3. Mobile Development
4. Data Science
5. Software Tools Development
6. API Development
7. Embedded Systems Development
8. Cloud Computing
9. Backend Development or Database Development
10. Security Software Development

Software Development languages and technologi

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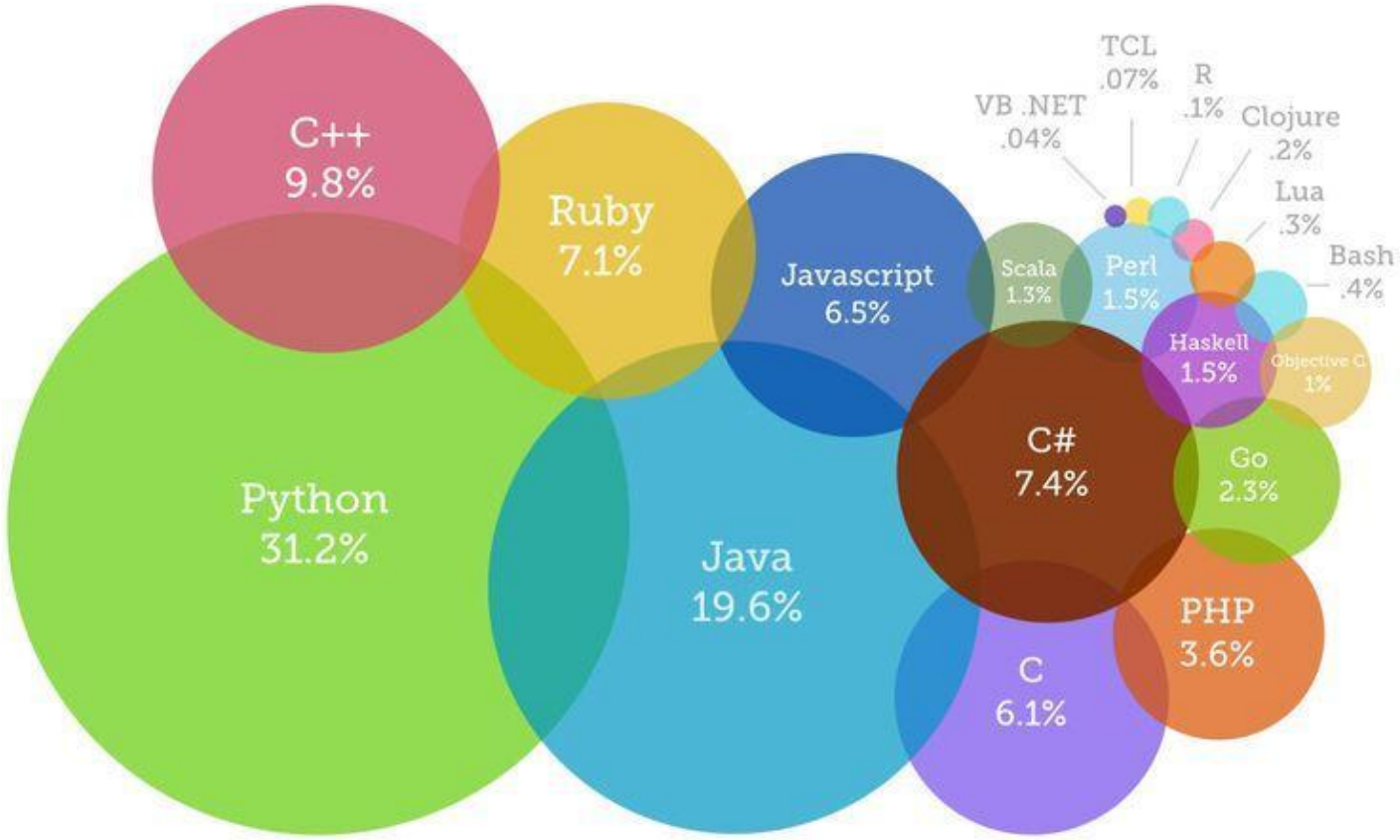
What is Programming Language?

A programming language is a notation designed to connect instructions to a machine or a computer. Programming languages are mainly used to control the performance of a machine or to express algorithms. The most popular languages are:

- C++
- C#
- C
- Python
- PHP
- JavaScript
- SQL
- HTML
- Java
- Perl
- CSS
- Rust
- Ruby
- Go



Software Development Life Cycle (SDLC) Phases

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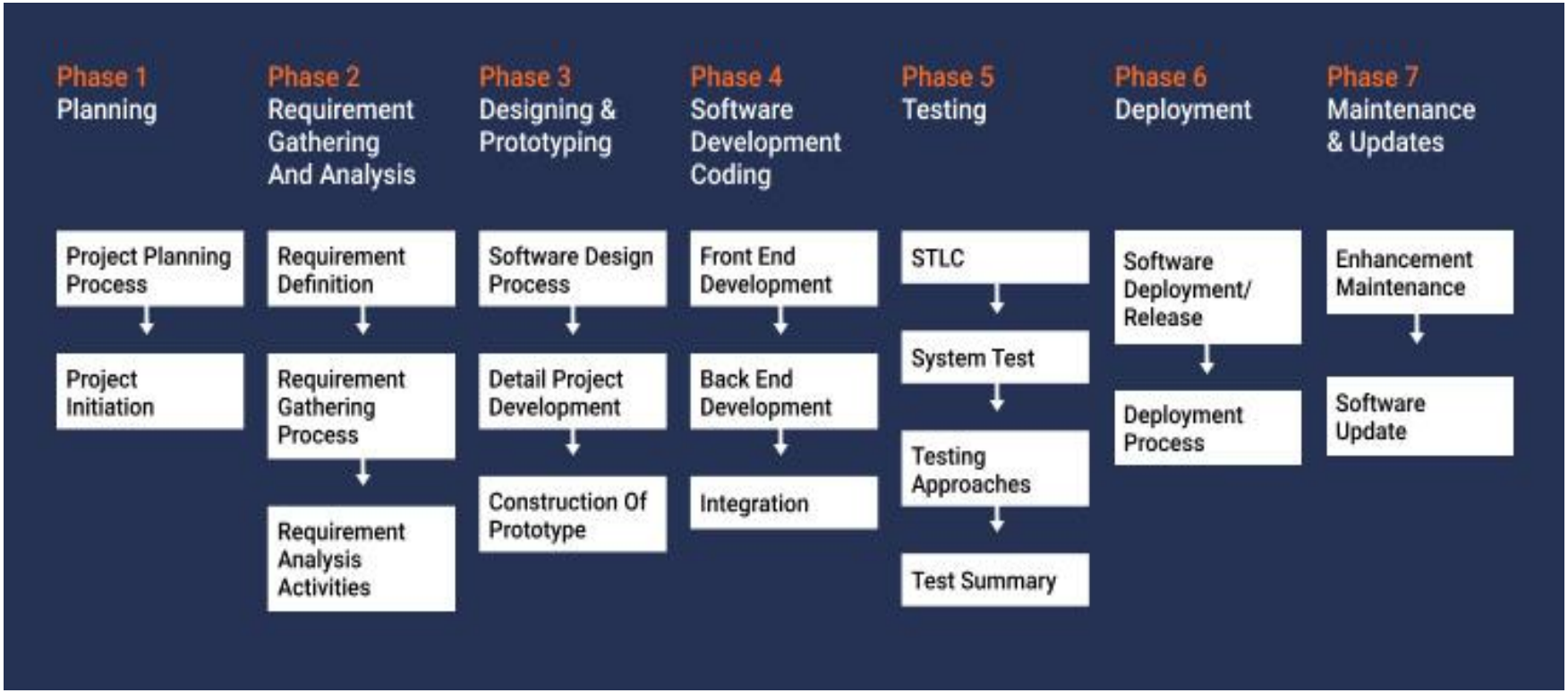
A standard **Software Development Life Cycle** consists of 7 SDLC phases.



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Section 2: ScienceSoft IT Departments

Board of Directors

Board of Directors is an operational center of the software company. It's here where C-level managers handle the strategic decisions in the organization. Usually they report to the captain of the ship - Managing Director.

Here are the main **C-level positions** you need to know:

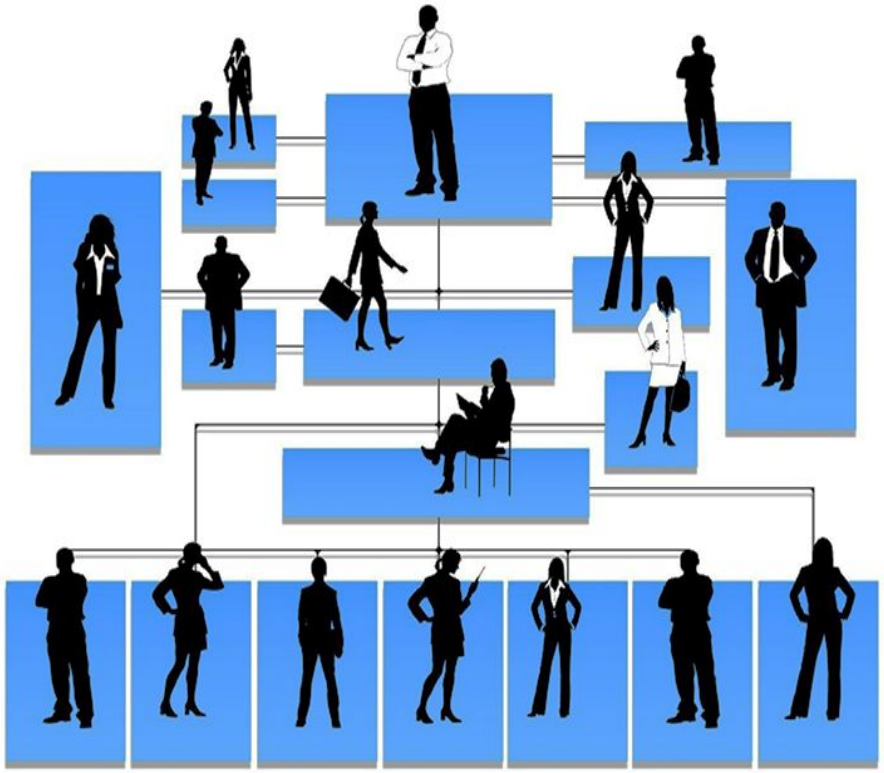
Chief Executive Officer (CEO)	Chief technology officer (CTO)
Highest ranking position that all other C-level executives report to. Responsibilities include overseeing the business as a whole, handling top-level policies and plans, establishing the business's goals and strategies, and making the final decision on any plans, strategies, or projects.	Often overlapping with the CIO's duties, the CTO oversees information systems and technology development. If a company has both a CIO and a CTO, then the CTO focuses on innovation rather than the management of the IT infrastructure, which falls to the CIO. Responsibilities include overseeing new technological, product, and feature developments.

*There are many other C-level positions you can find in the **notes** here.*

ScienceSoft Department Structure

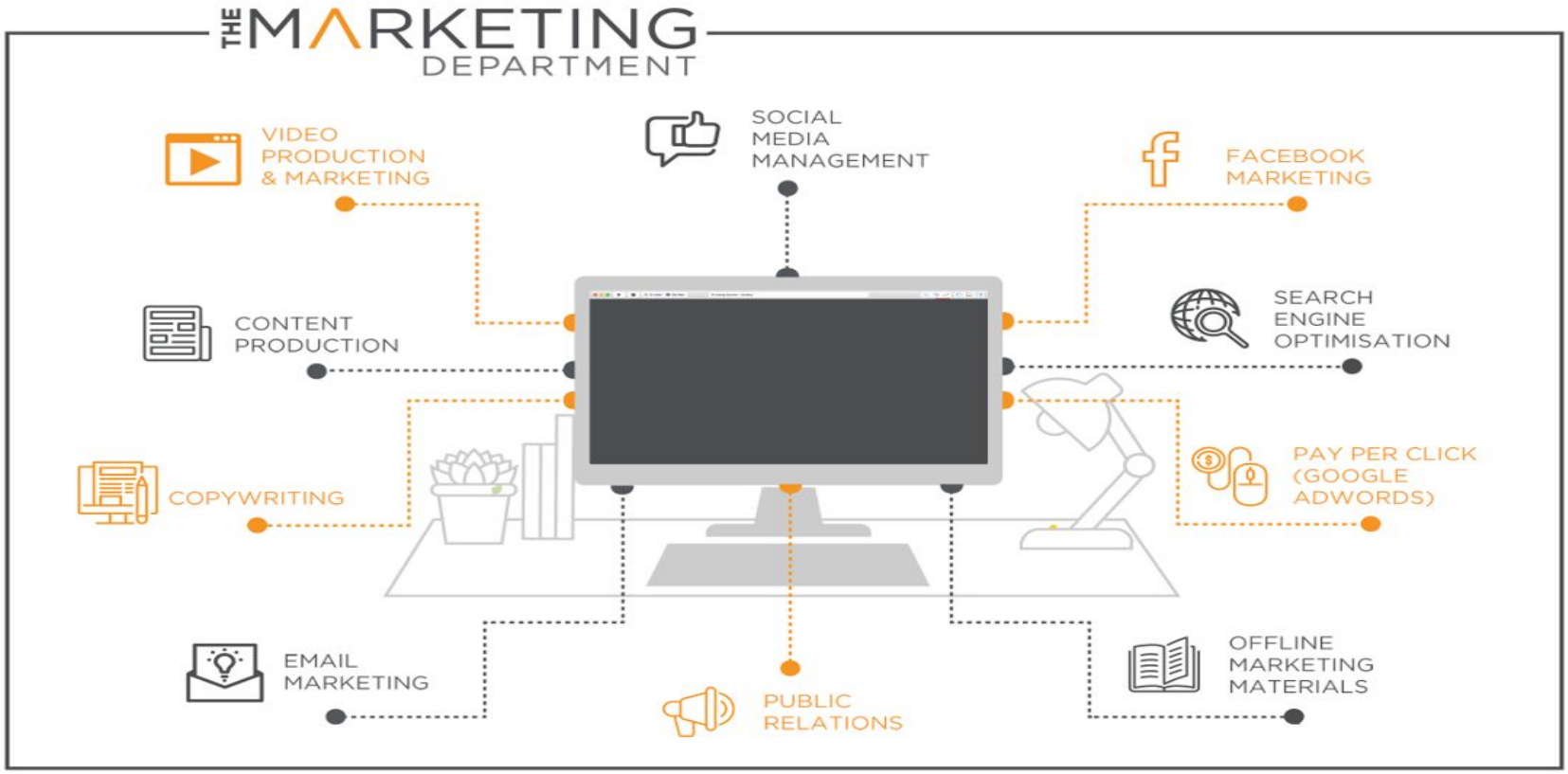
The main Departments in IT company are:

1. Marketing Department
2. Human Resources Department
3. Sales Department
4. Accounting and Finances Department
5. IT Department which include:
    1. Software Development
    2. Information Security
    3. Software Testing
    4. ICT Support
    5. Research and Development
    6. Business Analysis



Marketing Department

Long story short they are responsible for creating the **company's image on the market**. Starting from the design of the website, through advertising, presence on industry portals and press releases. The main task of the marketing department is to make the company visible to a potentially interested customer.



HR Department

Their main objective is to create the best possible team of dedicated and reliable employees as possible. Not only to **recruit** the most relevant new ones, but also to **train** the ones already employed. They are also aimed at staff development programs, improvement of staff efficiency and career pathing. Moreover, the HR department plays an important role in creating and implementing health and safety regulations within the company.

Sales Department

A sales department is responsible for **selling IT products** or **services** for a company. The department comprises a sales team that works together to make sales, increase profitability and build and maintain relationships with customers to encourage repeat purchases and brand loyalty.

Accounting and Finances Department

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This department mostly takes care of every **financial aspect** among the company. Also their aim is to control document flow and all settlements with partners.

Development Department

It is commonly said that software houses are responsible mainly for the technical scope of work on applications and software development. But there is more to that. These teams are taking part in the whole **process that starts long before the actual code** is being written and does not stop there.

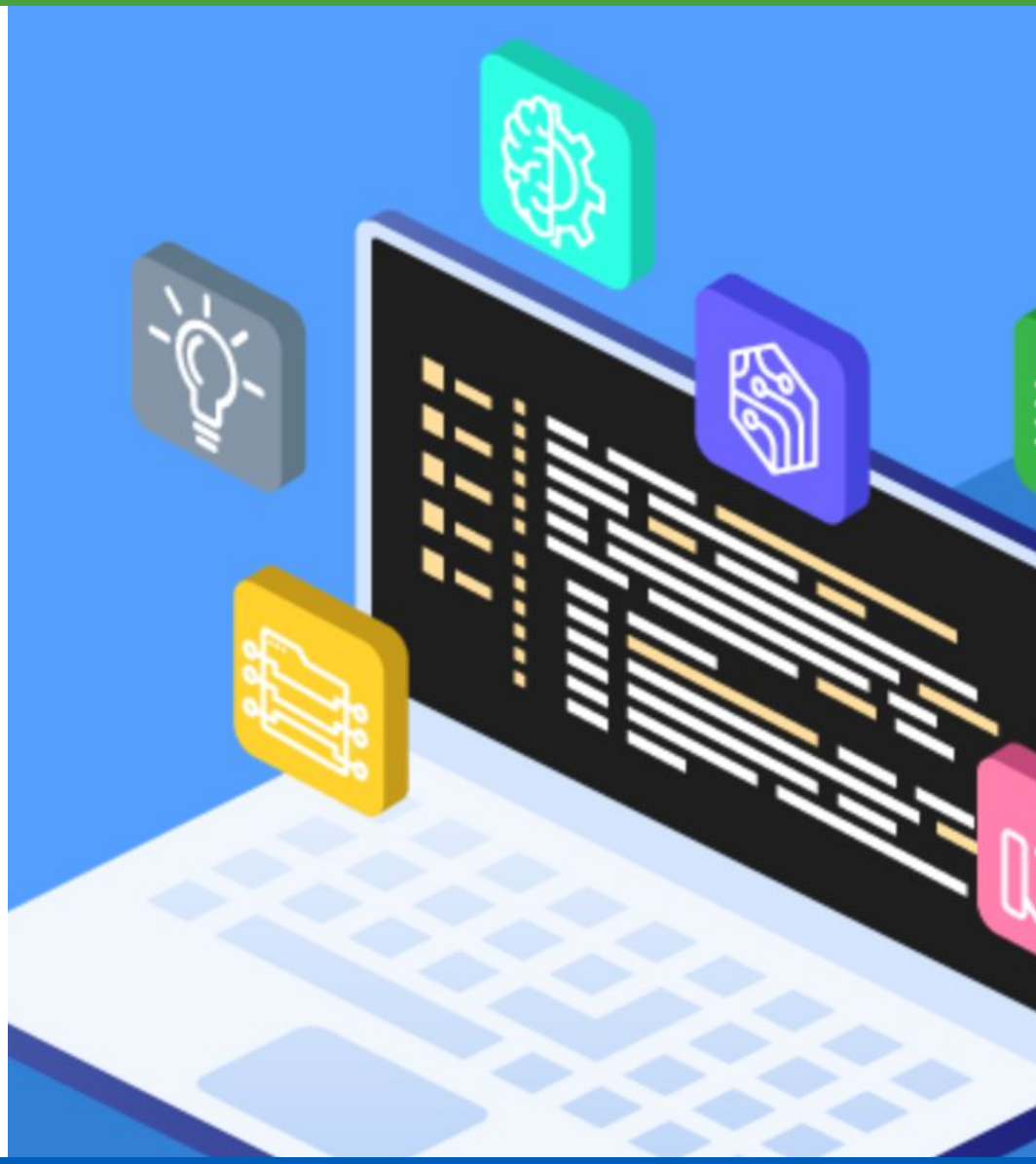
At the very beginning the development team meets the client's project already when it's being discussed in terms of the overall shape and desired functionality. This also gives a chance to pre-plan what kind of tech stack will be used to carry out the technological phase. Still development team activity at an early stage of the project may vary depending on the documentation provided by the customer. *The more information the customer provides, the more efficiently the process is carried out.*

Development Department

Software Development

It's a core center of **writing and coding software programs** which can include many sub departments such as:

- Java Department
- PHP Department
- NET Architect Development
- Mobile Department
- ESM Department
- Dynamics 365 Department
- Data Base Deparment



Development Department

Information Security

The Information Security Department is responsible for implementing and maintaining organization-wide information security policies, standards, guidelines, and procedures.

Development Department

Business Analysis

Business Analysis Department is aimed at identifying business needs and finding solutions for business problems. Business analytics involve working with and manipulating data, extracting insights from data, and using that information to enhance business performance or solve business problems. Business problems may include an extend range from a software-systems development to process improvements, organizational changes, strategic planning and policy developments.

Development Department

Research and Development

A company's Research & Development department plays an important role in the life cycle of an IT product. Project managers conduct life cycle models and methodologies to improve workflow of IT team on any development project. Before a new product is developed its R&D duty to conduct the methods . It includes Agile, Waterfall, V-Shape and any other method.

Software Testing, Quality Assurance, Quality Control

Software testing is the process of evaluating and verifying that a software product or application does what it is supposed to do. The benefits of testing include preventing bugs, reducing development costs and improving performance.

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Section 3: Team Roles in Software Development

Team Roles in Development Department

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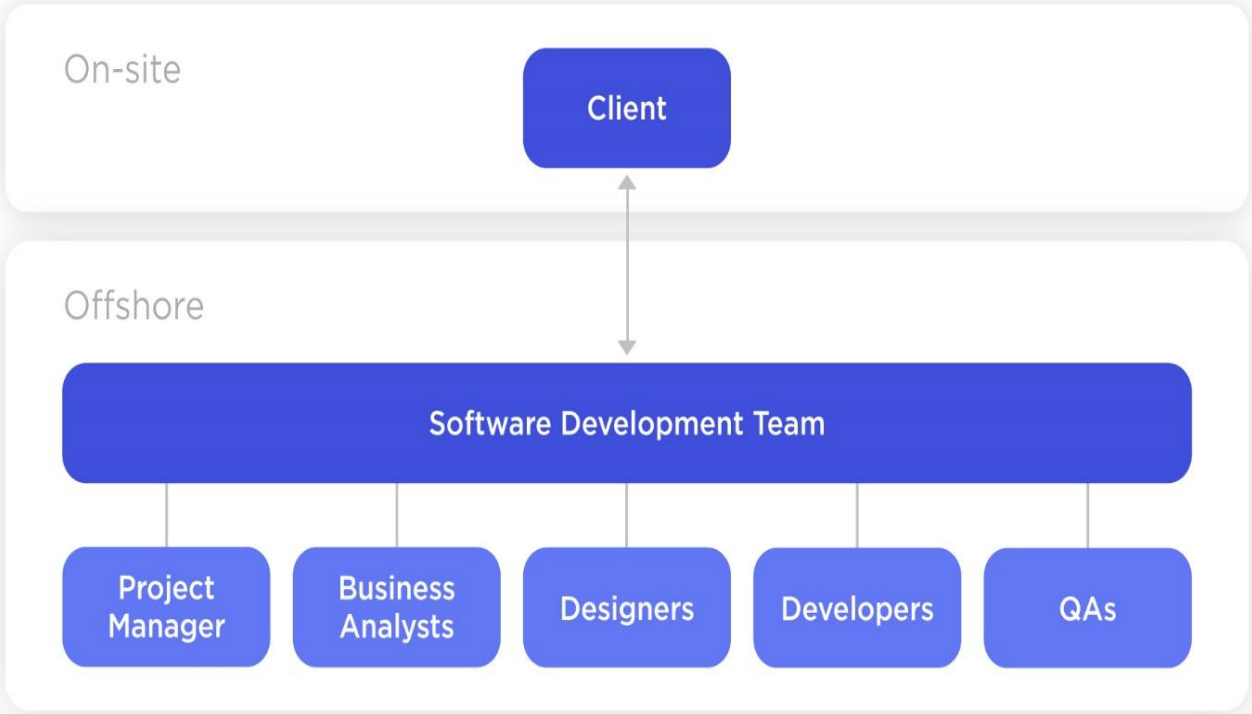
Basic team roles are:

1. Frontend developer
2. Back-end Developer
3. UI Designer
4. UX Designer
5. Tester
6. QA Engineer
7. Team Lead
8. Business Analyst
9. DevOps Engineer
10. Project Manager

RELEVANT

TYPICAL SOFTWARE DEVELOPMENT TEAM STRUCTURE



Team Roles

Frontend developer

Creates the part of your application that the users see and directly interact with. They make sure the experience is equally smooth and user-friendly to every person who uses the app.

Back-end Developer

A programmer focused mainly on developing business logic and data layers. And because elements are crucial to system functioning; its correctness depends on the quality of back-end developer's work.

Team Roles

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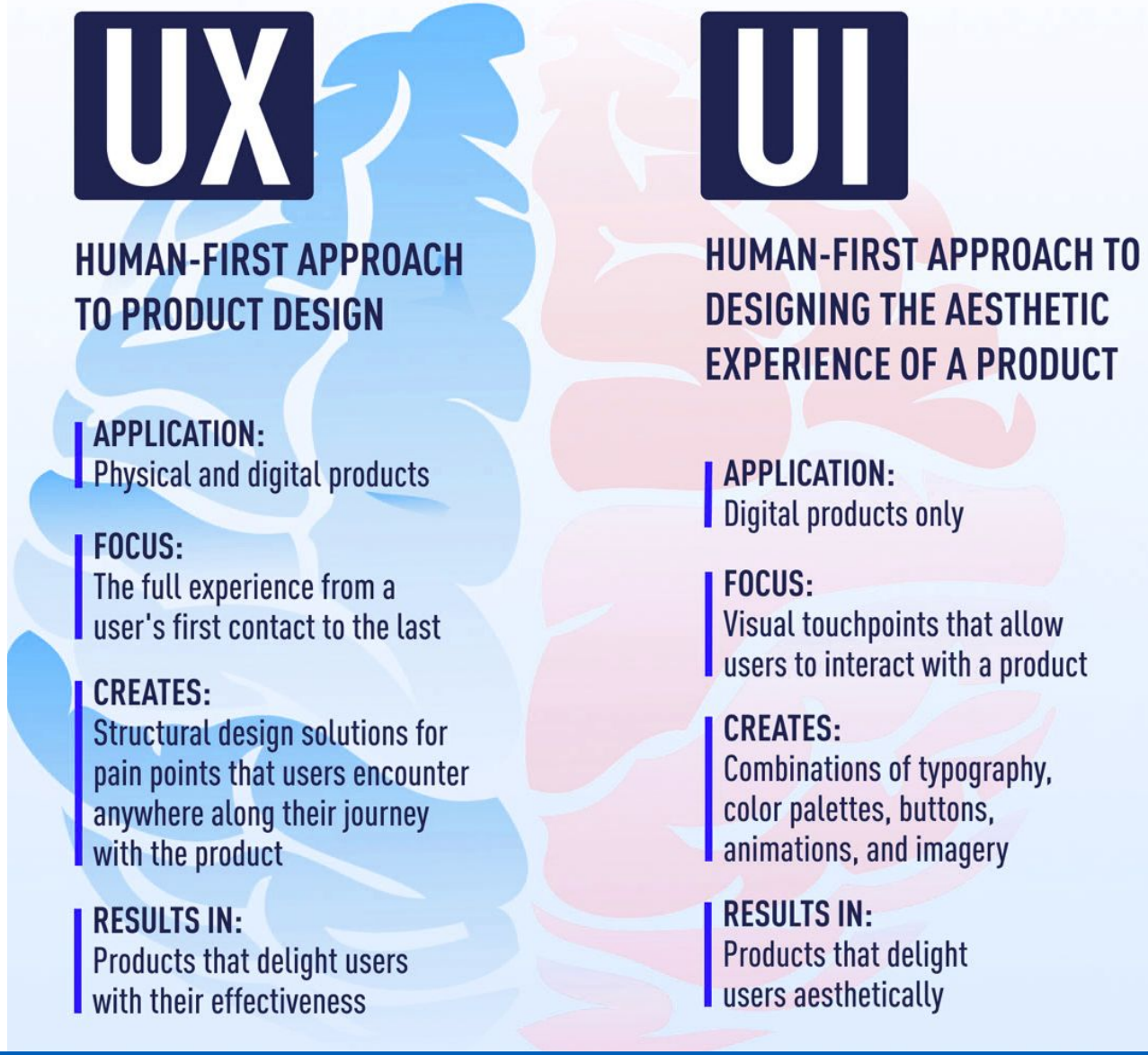
UI Designer

The primary duty of the UI designer is to prepare, or design, the user interface. This means transferring content, style, graphics connected with a client or product to a system presentation layer.

UX Designer

Contrary to the UI designer, it's a function characterised by a less 'digital' approach to a user interface. The UX designer – whereby UX means User Experience – must make sure that end users will have the best possible experience while using an application.



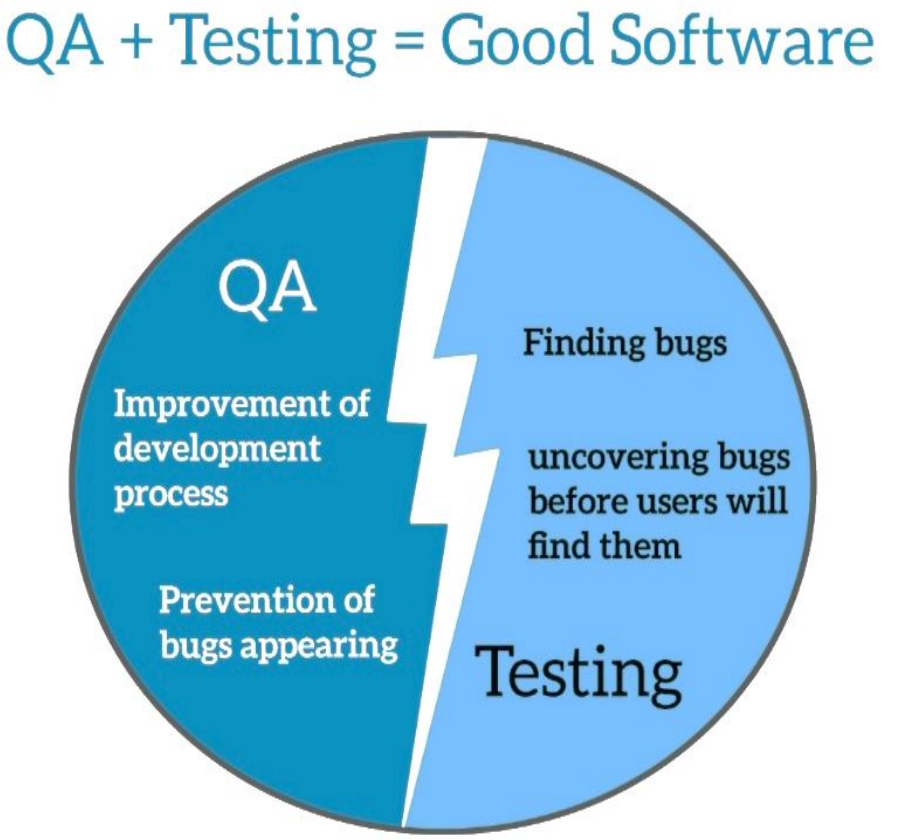
Team Roles

Tester

a person who is responsible for quality control: finding and testing software defects under controlled conditions and evaluating the results of its elimination.

QA Engineer

a person who improves the development processes to prevent the introduction of defects making sure that any agreed-upon standards and procedures are followed.



Team Roles

Quality Assurance (QA) ➡ Analysis -> Architecture -> Development -> Testing -> Verification

is the planned and systematic set of activities to **improve the development processes to prevent the introduction of defects**. Monitoring and improving the process.

- making sure that any agreed-upon standards and procedures are followed;
- ensuring that problems are found and dealt with;
- It is oriented to problems prevention.

Quality Control (QC) ➡ Analysis -> Architecture -> Development -> **Testing -> Verification**

includes activities that **find and correct defects**: operation of a system or application under controlled conditions and evaluating the results. It is oriented to problems detection.

Team Roles

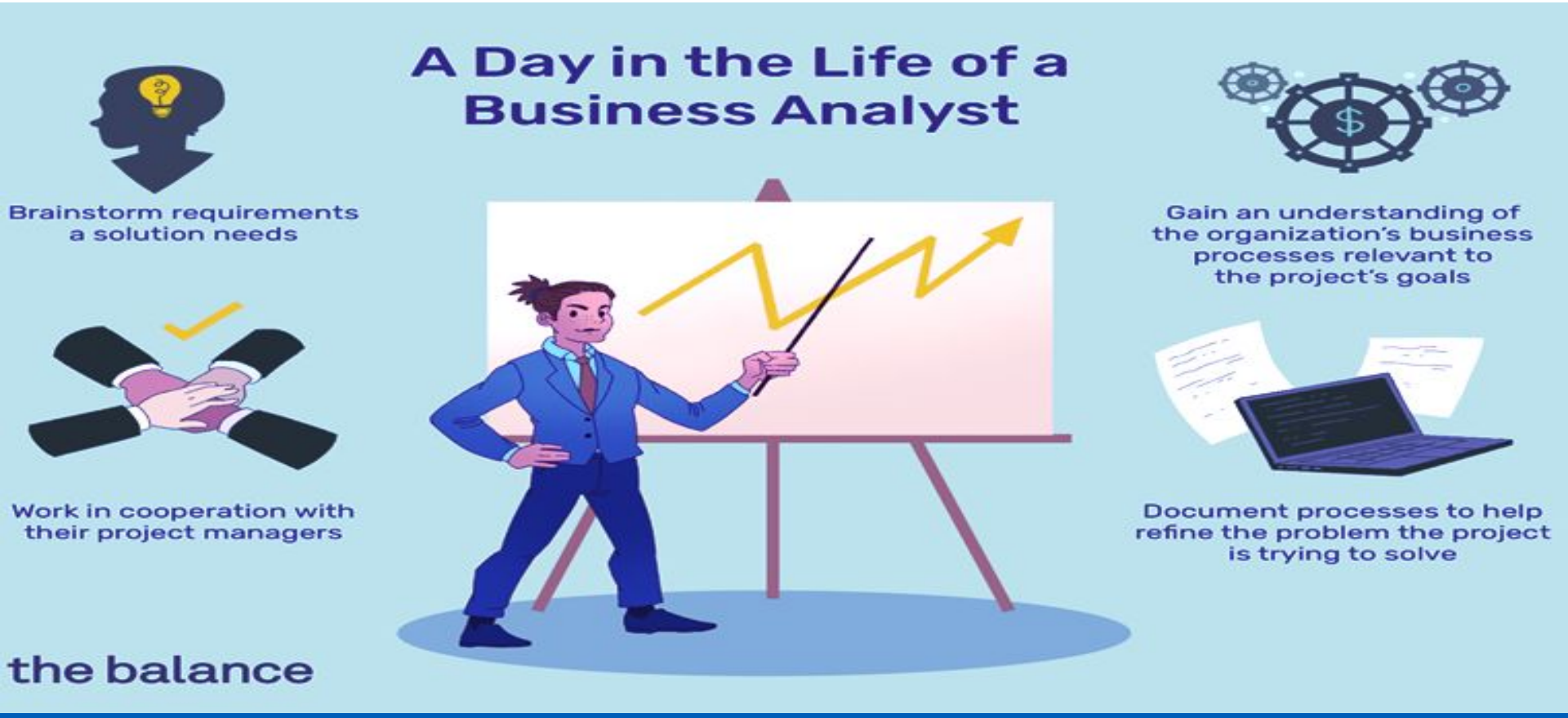
Team Lead

This person should have leadership qualities which allow for maintaining communication between remote development teams and for example – clients.

Team Roles

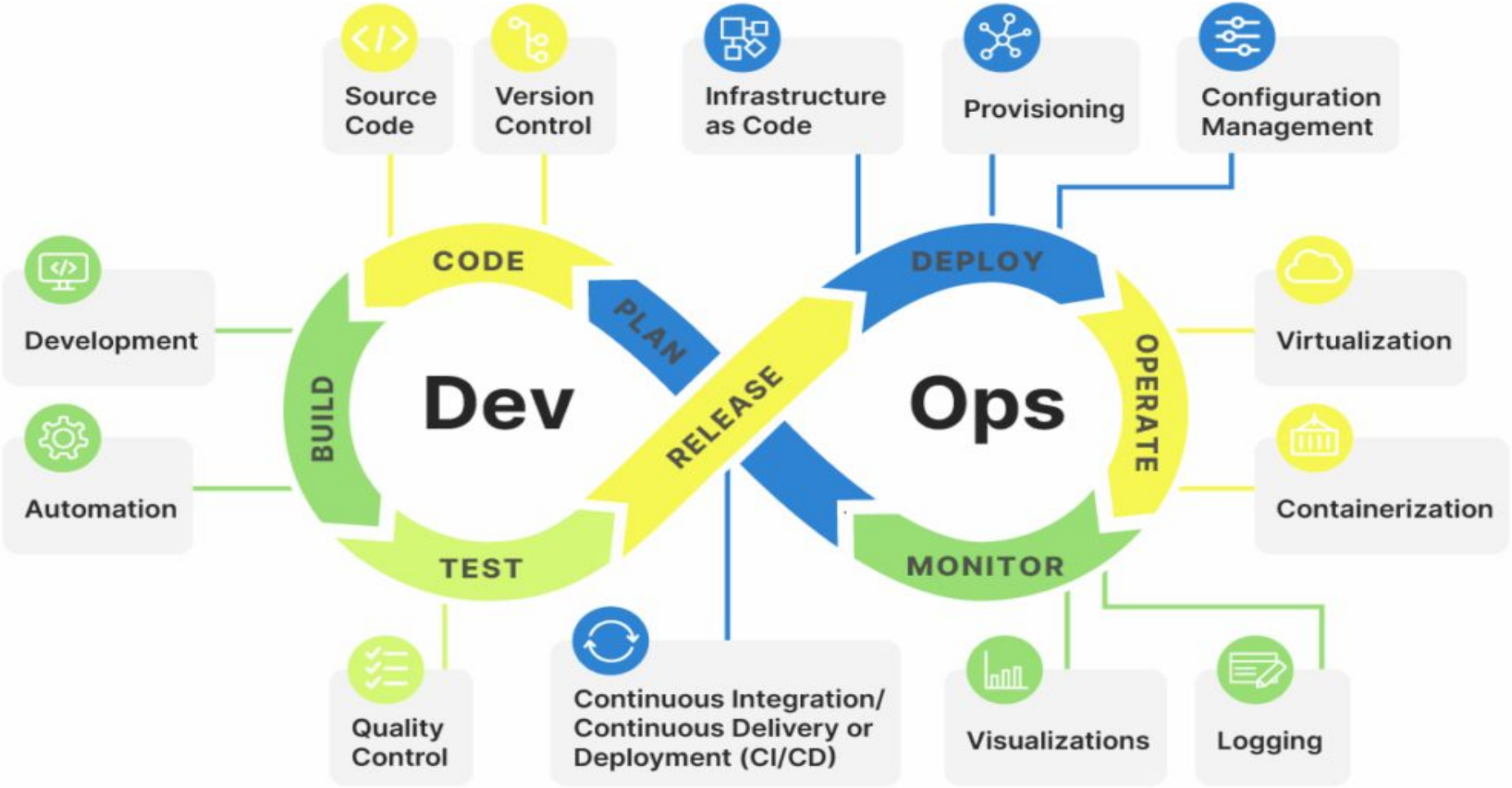
Business Analyst

Business analysts help to define business problems via in-depth investigation and gathering of technical and non-technical information. Once the issue is clearly understood, they outline detailed requirements for a solution and ensure the delivered solution meets those business requirements.



Team Roles

DevOps is a set of practices that combines software development (Dev) and IT operations (Ops). It aims to shorten the systems development life cycle and provide continuous delivery with high software quality.



Team roles

Project Manager

Works on a higher level of abstraction and is responsible for a budget, risk, schedule and contract management.

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Section 4: Support Department

Support Department Overview

At the moment, our Support sub department is a part of the testing department. However, according to the results, we are growing at a fast pace. Over the past 2 years, the number of Technician Supporters has increased by approximately 700%.

For more information of Support Structure follow the link below: **https://confluence.scnsoft.com/pages/viewpage.action?spaceKey=DEM1&title=Support+L1+Space**

If you don’t have the access, ask your trainer, team leader or manager to grant it.

Support Department Career

More and more new projects are emerging and new teams are being formed, which provides an opportunity for many, not only to get acquainted with wonderful people and gain new knowledge skills in the field of technical support, but also career opportunities.

You can probate yourself as a trainer for newcomers, as a Team Leader on a project or increase your knowledge and become Level 2 support. If you wish to climb the ladder do not hesitate to contact your Project Team Leader or our Manager ***Veranika Kavaliova.***

Support Department Scope

At this stage 7 Teams have been created which currently are working on over 18 different projects including Desktop and Application Support.

Our main tools we use for doing our work are **Ticketing systems** where we track all the issues, **Confluence** used as our Knowledge Base, **Windows Server** to manage computer accounts and **Office 365 admin panel**, used for managing users' mailboxes. Also we are skilled in resolving desktop issues regarding PC configurations and errors. Apart from above we are supporting some applications helping customers with guiding their users and solving typical issues.

A service-level agreement (SLA)

A contract between a service provider (i.e. Support Department) and its customers that documents what services the provider will furnish and defines the service standards the provider is obligated to meet.

SLA

Key components of an SLA you need to know on your project:

- **Scope** – Defines which activities you are to resolve as Level 1 Support
- **Language** – defines which languages are to be spoken on
- **Ticket KPI** – defines metrics by which time the issues are to be resolved, how many positive and negative assessments are.
- **Communication channels** – defines where and via what should you contact with the user
- **Assumption** – defines how many tickets should team be responsible to resolve within a period of time

KPI

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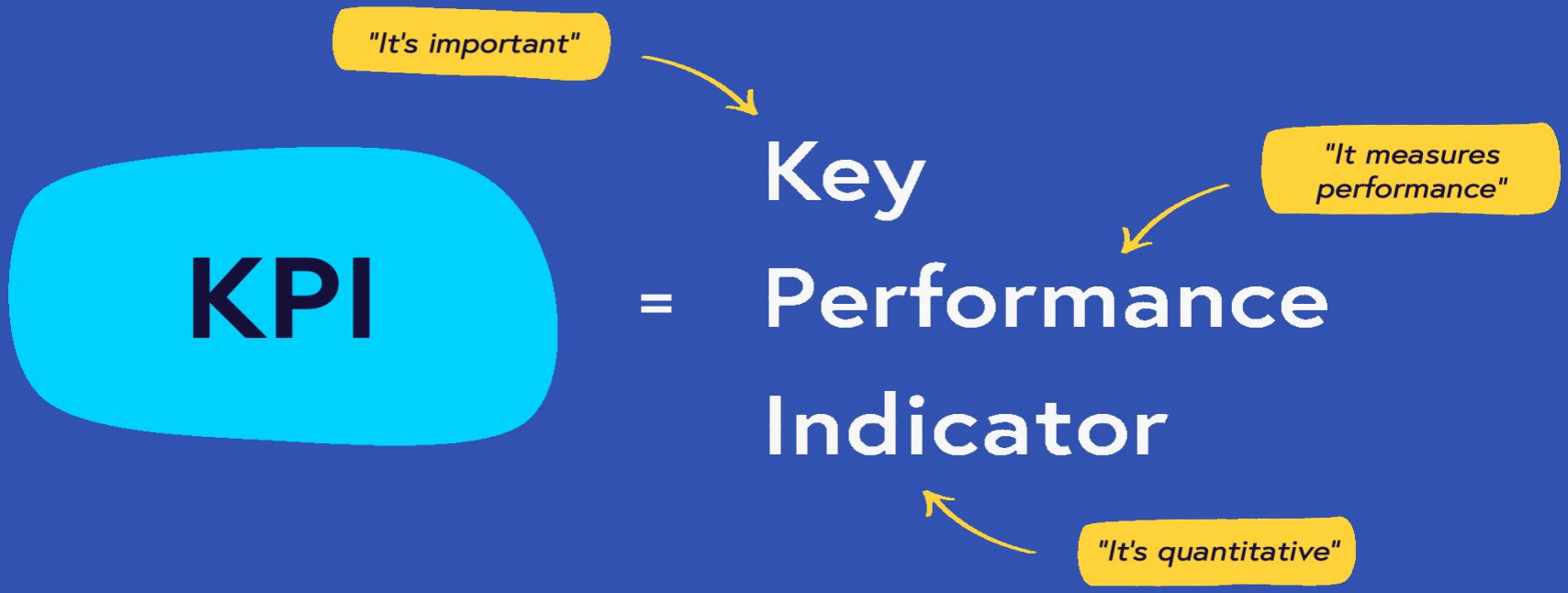
What is a Key Performance Indicator (KPI)?

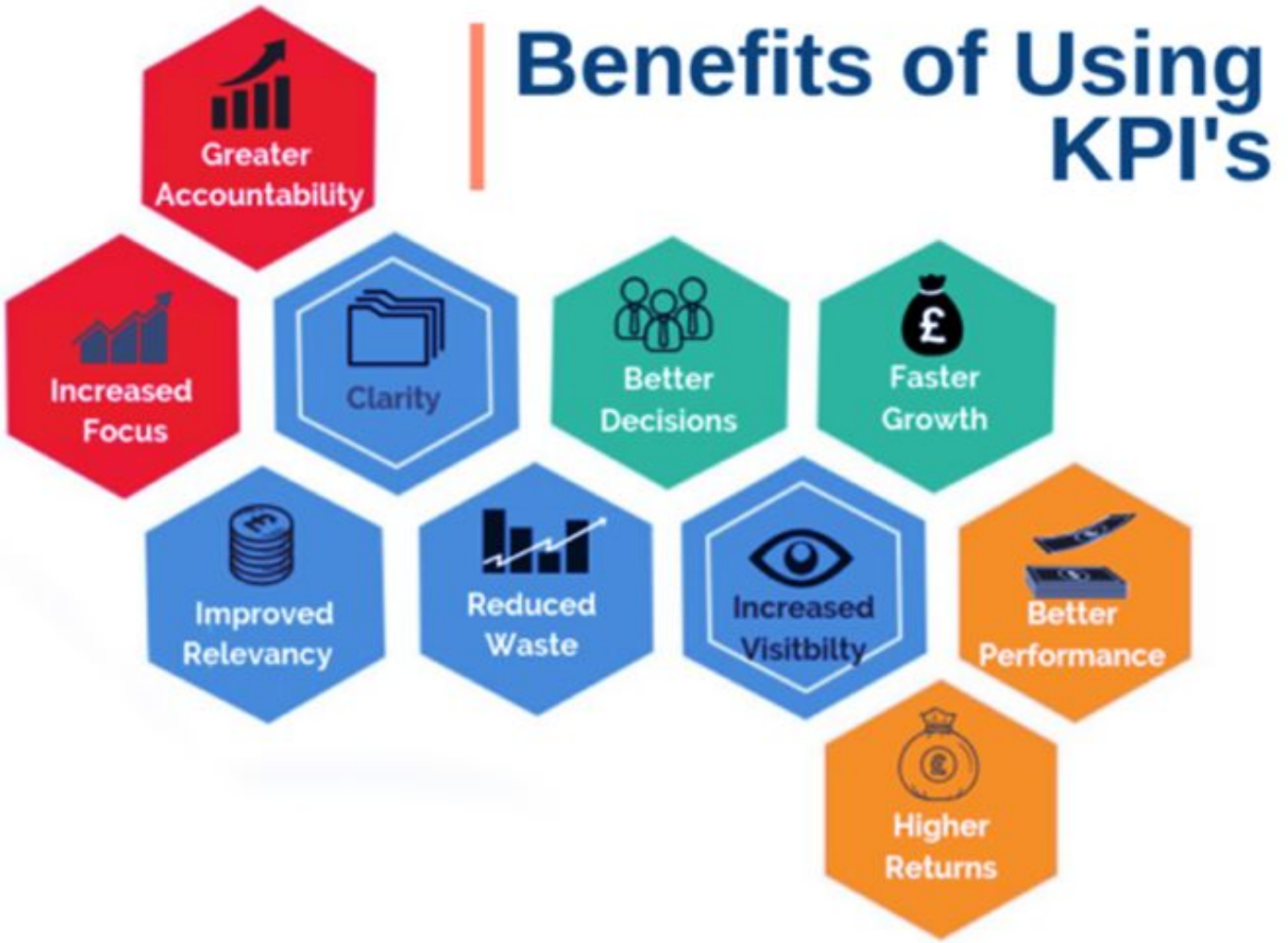
- the critical indicators of progress toward an intended result
- provides a focus for strategic and operational improvement
- creates an analytical basis for decision making
- can track efficiency, effectiveness, quality, timeliness, governance, compliance, behaviors, economics, project performance, personnel performance or resource utilization
- offer a comparison that gauges the degree of performance change over time



KPI

KPIs can be categorized into several different types:

- **Inputs**
- **Process**
- **Outputs**
- **Outcom**
- **Project**



Standard SLA metrics for technician support:

#	KPI	SLA
1	First Response time (for emails and ticketing system)	30 mins
2	ASA – Average Speed to Answer Phone calls	80% call within 40 sec
3	CSAT – Customer satisfaction score	92+%

Additional SLA metrics are discussable. In case of need to apply additional SLA metrics, it can be agreed during the Transition phase.

Description of ticket statuses and time resolutio

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Standard ScienceSoft SLA metrics for technician support:

Critical	An issue that results in a critical business impact for a Production System; may be assigned to an Issue where user experiences (i) a complete or substantial loss of service when using a Production System, or (ii) real or perceived data loss or data corruption making an essential part of the Production System unusable, or (iii) the inability to use a mission critical application within a Production System. Render a site unusable and have no workaround cause loss/corruption of stored data (Lost user input, e.g. a failed form submission, is not the same thing as data loss and in most cases is major); expose security vulnerabilities.	1 hour
High	May be assigned to an issue where user experiences (i) the functionality of the software is adversely affected, but can be circumvented, or (ii) certain functions within the software are disabled, but the software remains operable, or (iii) a complete or substantial loss of service when using a QA System; major issues do not block point releases.	4 hours
Medium	May be assigned to an issue where user experiences (i) partial non-critical functionality loss and the issue has no significant effect on the usability of the software, or (ii) time-sensitive issue important to long-term productivity that is not causing an immediate work stoppage; have isolated impact and may have workarounds.	24 hours
Minor	May be assigned to an issue with no impact to quality, performance, or functionality of the software, or cases of general information requests, such as usage and configuration; most often used for cosmetic issues that do not inhibit the functionality or main purpose of the project.	no SLA

Example of SLA report

REPORT DETAILS		
Support period	MM/DD/YYYY- MM/DD/YYYY	
Support availability	XX – XX Time Zone	
Monthly Case Package	XXX Cases	
Statistics		
Total amount of Cases	XXX	
Total amount of Extra cases	XXX	
Total amount of calls	XXX	
Cases escalated to the next Tier	XX	
Cases by Priority	Priority 1	XX
	Priority 2	XX
	Priority 3	XX
	Priority 4	XX
KPI	**Value**	**SLA**
ASA - Average Speed to Answer Phone calls	XX sec	XX sec
First Response time (for Jira ServiceDesk tickets)	XX min	30 min
CSAT – Customer satisfaction score	XX%	92%+
Summary		

CONCLUSION

After reading the above contents, do you have a brief understanding of **what IT is**? If not, or if you have some questions, please feel free to write them down and ask your mentor. Hope you have learned today something new.

Good bye☺️