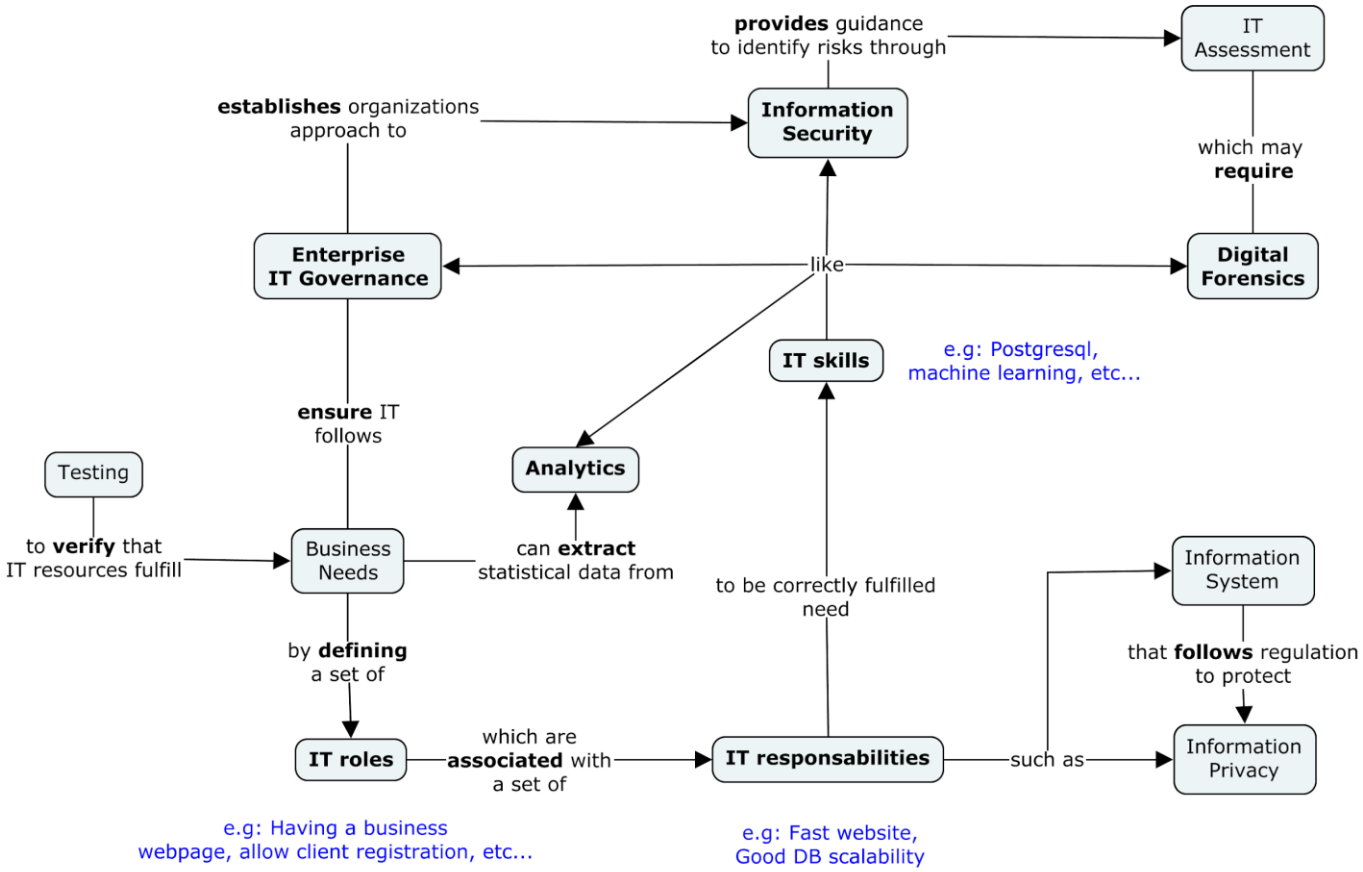
GSI (Case I) - Students numbers (5 digits): 83576 - 97155

1 – Conceptual analysis



Concept	Definition (one sentence by concept)
IT roles	Goals to be performed in the context of Information Technology according to business needs.
IT responsibilities	Duty or obligation, associated with a role, to perform an IT task, including compliance regulation.
IT skills	Technology abilities and knowledge related to the use of technology that is deployed to satisfy an IT responsibility.
Enterprise IT Governance	Formal framework aimed at aligning the business strategy with the IT strategy to achieve their strategies and goals.
Information System	An integrated set of components for collecting, storing, and processing data and for providing useful information to business decision-making.
Analytics	The application of mathematics, statistics, predictive modelling, and machine-learning techniques to discover meaningful patterns and knowledge in recorded data.
Information security	The selection, design, implementation of controls and management strategies to maintain the confidentiality, integrity, and compliance of information systems with legislation.
Testing	The planning, design, management, execution and reporting of tests, using appropriate testing tools and techniques, to confirm that a component is working as intended.
IT Assessment	The process of identifying and analysing IT strengths, weaknesses, and methods to boost efficiency and productivity.
Digital Forensics	Is the science and the process of finding evidence from digital media, preservation, identification, and extraction of computer evidence which can be used by the court of law.
Information Privacy	Privacy of personal information and relates to personal data stored on computer systems.
Business Needs	Needs of the business which describes the business goals, objectives, and problems that the business is trying to solve.

2 – Description of the analysis

Most organizations today have well-defined business needs. Those business needs must be aligned with both organization and IT strategy, much like two entities in a boat must paddle in the same direction. Those business needs are converted in **IT roles**. Such roles consist of activities that IT should perform to help organizations to achieve value. Such roles, for instance, are, having a webpage to display the products that an organization sells. For every **IT role**, a set of **IT responsibilities** is associated. Using the same example, a website may have to store data securely according to regulation (e.g. GDPR). Finally, to implement a responsibility one or more **IT skills** shall be used. For instance, implementing a website requires technical expertise.

There are several **IT skills**, the most important ones are **Enterprise IT Governance** which is, according to SFIA 7, responsible for merging both business and IT visions. **IT Governance** also establishes organizations' approach towards **Information Security**, which itself is a skill that companies should have, and it is a concern in protecting the access of information from prying eyes. Information Security also guides **IT Assessment**. **Digital Forensics** is one of the important tools to perform **IT Assessments**, namely assessment of the evidence that can be used in the court of law to show if regulations are being fulfilled.

With the amount of information stored, it is necessary to be able to extract useful data. Therefore, **analytics** come into play by using mathematics and statistics to extract correlation between values, empowering organizations with a huge amount of useful data and with great potential.

"*With great power comes great responsibility*" and therefore organizations have the responsibility of handling sensitive data securely. Therefore in the context of **Information Systems,** the concern of personal data storage and **information privacy** protection are examples of **IT responsibilities**. To assure the functionalities in such systems **Testing** mechanisms should be in place to make sure features are inlined with business needs.

3 – Research

To answer this question, we state 5 of the most important skills we covered in our program and 5 we did not cover. According to our research, the most in demand IT skills at the moment are **Cloud Computing**, **Cybersecurity**, **Analytics, Data Engineering** and **AI and Machine learning**. These are specific skills that may be translated to a combination of SFIA 7 skills, for a higher level view. These can be **Technical Strategy and Planning, Service Design, Analytics, Information Security and**. These skills have all been addressed in our MSc program at IST. It should be noted that the skills we learned are highly dependent on the course choices we did along the way. So other in-demand skills such as **virtualization**, **software testing** could be learned as there are specific courses that cover those. On the other hand, skills like **Project management**, **User experience design**, **Business analysis** were not covered. The order of classification of these skills is heavily influenced by the sources stated below. Many of these skills can be considered as support tasks, and the order depends on the importance of the skill for the businesses as well as the lack of experienced professionals on that specific skill, as it is based on data from LinkedIn postings for instance. These are core roles to maintain integrated information systems in a secure and reliable way.

https://www.globalknowledge.com/us-en/resources/resource-library/articles/the-10-most-important-it-skills-for-2019/

https://www.cnbc.com/2019/01/08/the-25-most-in-demand-technical-skills-of-2019-according-to-linkedin-.html

https://www.sdxcentral.com/industry/career/digital-transformation/2020-most-in-demand-it-skills-to-know/

https://learntocodewith.me/posts/tech-skills-in-demand/

https://www.sfia-online.org/en/framework/sfia-7/change-requests/6

4 – Topic for discussion

How does the evolution of IT Skills vary according to the innovation lifecycle of an enterprise?