



**ISTITUTO
ITALIANO DI
TECNOLOGIA**

ICT Strategic Plan 2019-2023

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Overview

This document draws up guidelines that will guide the development of the services offered by the ICT Directorate to the Foundation. The document states the mission, the vision, the values and the method through which the priority ICT initiatives and the related projects, that best contribute to the achievement of the results of the Foundation, are identified.

Mission

Our mission is to facilitate a world-leading research through the provision of safe, reliable and sustainable services.

Vision

The ICT Department intends to strengthen the IIT community by offering secure technological services that enable:

- Agile and rapid innovation available to research;
- Easily accessible internal and external digital-collaboration processes;
- Easy access to information and knowledge;
- Effective and efficient management and administrative processes;

Values

- User first
Taking care of user experience in everything we do;
- Be secure
Taking care of cyber security in everything we do;
- Open
Share competencies and knowledge to everyone needs;
- Innovative and proactive
Be forward thinking, fast moving, quick to explore new ideas and exploit fresh opportunities to achieve and sustain excellence. Anticipating the user's needs, have a "can do attitude" and a positive approach to change;
- From service provider to partner
Within a "service-oriented" mindset, develop a working partnership approach through close collaborations and facilitating integrated processes;
- Staff development
Participate to grow skills and build talents to deliver an effective contribute to research;

Introduction

Operating in a dynamic and international context with the mission of producing new knowledge and transferring frontier technology to the country represents a challenge for both strategic planning and delivery. It is therefore essential that the role of ICT is to be fully integrated to the context, understanding the challenge being able to adapt easily and ensuring to be an enabler within the organization. Moreover, working with a technology characterized by a rapid development and an high consumerization require an agile approach to keep the pace, assuring value and sustainability

During the first decade after the inauguration of the first IIT laboratory in Genoa the major challenge ICT department faced was to develop ICT infrastructure and delivery services to an enterprise growing up very fast. In that period the goals was to facilitate everyone working in IIT to make their job sooner and better.

Nowadays that the grow of IIT is stabilized the challenge is to be constantly a leverage to facilitate to excellence, improving day by day the maturity of process, the effectiveness, efficiency and timeliness of the solutions, the risk management.

For the reasons mentioned above, the Foundation needs a ICT "major release" strategic plan aligned to the IIT Strategic plan, but needs also to constantly update with minor release of the plan on 18-24 month basis as necessary.

Method

The need to define a plan aligned to the broader IIT require to gather input from a diverse set of source across IIT, so the channels from which the initiatives was originated are essentially four: (1) the ICT Directorate itself, (2) the scientific area and the research lines, (3) the administrative area (4) a benchmark of some big university.

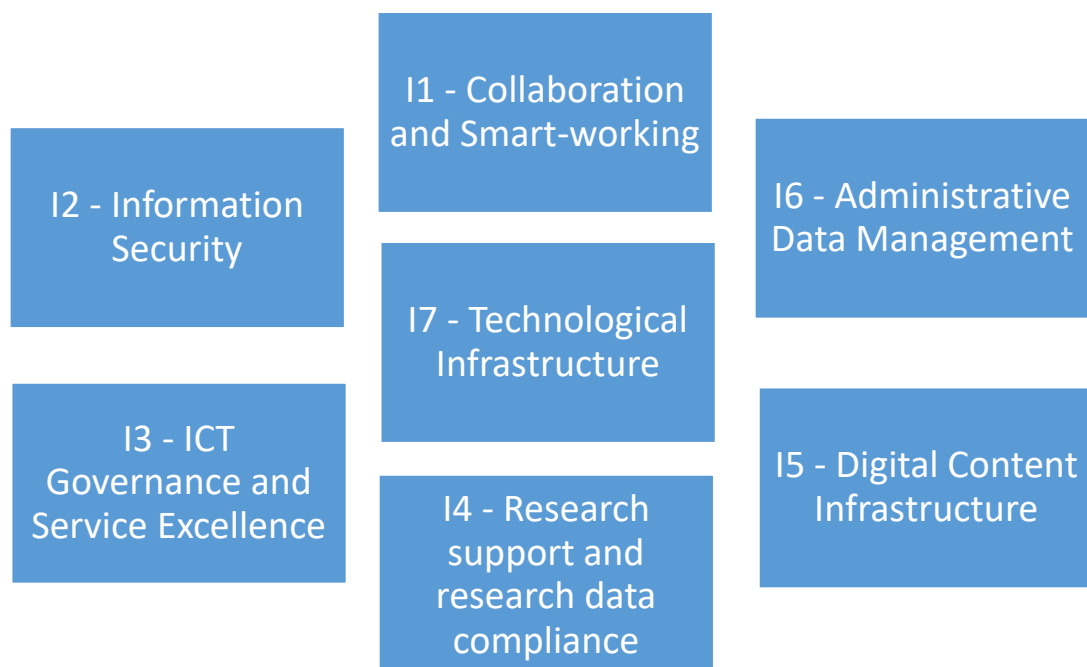
The ICT Directorate on the basis of its skills and knowledge and in relation to the evolution of market technologies and continuous comparison with IT technicians directly supporting the research lines, identifies the new technologies to be adopted.

From the constant dialogue with the PIs, both by virtue of existing collaborations, informal contacts and more structured comparisons through interviews and surveys, the ICT Department collects the IT needs of interest in the different strands of research and identifying priorities with the help of the Deputy's Council.

In providing the overall direction of the evolution of the Foundation's systems, the ICT Department collects and systematizes the priorities of the central departments expressed with the formal periodic involvement of the Administrative executives.

ICT Initiatives 2019-2023

Reflecting the 2018-2023 IIT's strategic plan, in which in order to deploy IIT'S Human-Centered Science and Technology vision are defined specific scientific and technological priorities, ICT's strategic plan 2019-2023 sets out the directorate commitment to stakeholder, underpinned by seven core initiative:



Following a brief description of the initiatives. For more details and a description of the related projects and their progress refer to Annex A.

I1 – Collaboration and Smart-working: The needs of working from anywhere with any device at any time requires the availability for all IIT's people of an integrate and interoperable set of collaboration tools to communicate, collaborate on IIT activities and with external parties sharing information and tools.

I2 - Information Security: Implement technologies, define operations and develop awareness to address IIT-wide risk management related to the use of digital technologies, to preserve information and on the respect of privacy law.

I3 – ICT Governance and Service Excellence: keeping ICT aligned with IIT strategic priorities, providing a responsive, user-centric and risk managed service.

I4 - Research support and research data compliance: provide support to research areas on ICT needs and to pursue a research data compliance management.

15 - Digital Content Infrastructure : encourage and implement the digitalization of business processes and update the infrastructure for storing digital content produced both in science and administration to help the preservation of knowledge and to guarantee agility.

16 - Administrative Data Management: pursue the creation of an Integrated Information System that improve the quality and usability of the Foundation's information assets.

17 – Up-to-dated Infrastructure: maintain and continuous develop flexible operating IT infrastructure, software and hardware, that delivers a high quality and responsive service.

Projects and costs

In "appendix A" are reported a list of project that are running at the time been and that are already budgeted in the yearly average costs of ICT directorate.

In the next yearly budget sessions other projects will be prioritized and the relative costs will be addressed, consequently this document and the relative appendix will be updated.

Appendix A

INITIATIVE	PROJECT AREA	PROJECT TITLE	DESCRIPTION	STATUS
11 – Collaboration and Smart Working	Smart working: provide users with the tools and digital technology that enable to choose when, where and how they do their jobs	Softphone diffusion & VPN capacity enhancement	Building infrastructure to address telecommuters need to use the phone and access documents and other resources while working from home.	Running
		Personal videoconferencing	Testing and implementing SkypeForBusiness integration with room videoconferencing systems through cloud services.	Running
	Cloud Office Tools: allow users to store, edit, share documentation, and collaborate with IIT members and external colleagues	Microsoft cloud platform setup	Adoption of Microsoft cloud platform base services: this investment enables users to seamlessly authenticate on both on-premises and cloud services and gives back many advantages in terms of security and administration capabilities	Completed ['19Q1]
		Office365 tools wide-spread distribution	Widespread adoption of Office365 Tools (e.g. Sharepoint, OneDrive, SkypeForBusiness, OneNote, Teams) to facilitate both research and administrative area business processes	Running
12 – Information Security	Rules&Controls: Guarantee the governance of security requirements within IIT through the predisposition of an internal body of rules, the implementation of internal controls and the measure of their efficiency in time	Information Security Policy	Definition of a policy concerning information security, where levels of information and services risk guide the identification of the minimum measures to be implemented, and for the usage of electronic devices and exchange of information.	Completed ['19Q1]
		Cyber Security Procedures	Define operative procedures in order to mitigate the ICT risk associate, guaranteeing the compliance and improving the maturity of processes	Running [2019-2023]
	Organization, Training & Awareness: Increase the awareness of IIT employees and staff on information security risks and on appropriate behaviours to adopt, also through correct attribution of roles and responsibilities.	Cyber Security awareness program	Implement tools and methodology to reduce phishing attacks and malware infections and to improve the awareness of IIT staff about IT risks	Running [2019-2023]
	Data Protection: Reduce the legal impacts linked to disclosure, change and illicit usage (fraudulent, not authorized, accidental) of business data, on the basis of their risk classification level (business and privacy needs)	Encryption and Pseudonymisation procedure	Data protection program aimed at introducing the usage of cryptographic measures and management of encryption keys and pseudonymisation	Running
	Logical accesses management: Guarantee centralized control for the management of identities and accesses to systems and applications, improving usability of the same by users and easing possible digital forensic activities	Active Directory integration	Assess and integrate the IIT assets with an unique standard method of authentication in order to mitigate the risk of a data breach	Running
	Log Management: Guarantee the collection, management and correlation of security Logs to make monitoring of security activities and possible digital forensic activities useful, simple and homogeneous	Logging system	Implement a log management system that allows information to be correlated in order to identify and mitigate IT risks	Running
		Application catalog review	Development of a catalogue of applications that process personal data to oversee data security strategy and GDPR compliance	Completed
	Application Security: Reduce information security risk linked to application vulnerabilities	Penetration Test program	Define a program to certify an IT services through authorized simulated cyber attacks, performed to evaluate their security. The tests are performed to identify both weaknesses (also referred to as vulnerabilities), including the potential for unauthorized parties to gain access to the service's features and data as well as strengths enabling a full risk assessment to be completed	Running [2019-2020]
	Network Security: Guarantee an appropriate control, monitoring and protection level for information, by setting routing and firewalling and network engineering rules that avoid/reduce the loss of confidentiality of information	Web application firewall	Implement a service to strengthen the security of web applications	Completed
		Network segregation	Carry out analysis activities on network to update network outline plans of, to assess the possibility to segregate internal network of IIT and to provide for continuous monitoring of network status	Running
		Security Operation Center	Implementation of a Security Operation Centre (SOC) in Direzione ICT to detect and manage security events that occur within IIT network. SOC's activity can implement an alerting security service with the aim to transmit within Istituito the information and security alerts that concern imminent/urgent problems	Running
		Microservices	Microservice project aims to bring the container solution to split large applications into smaller pieces that exist independently. It will empower the developers with continuous integration and will bring many benefits like easy deploy, application scalability, self-healing. Applications are safer in containers getting strongest default isolation capabilities	Running
	System Security: Ensure that information security is designed and implemented as integral part of life cycle and management of systems	Security hardening	Define a set of hardening configurations based on International security standard in order to mitigate the IT risks and implementation of an automatic system updates solution	Running
13 ICT Governance and Service Excellence	ITSM(Information Technology Service Management): improve and support ICT services through ITIL best practices, process management, standard tools, and Workforce Development: attempt to characterize the ICT workforce laying the foundation for tools that can guide	ICT services portfolio	Review ICT services portfolio	Running
		ICT Best Practice Promotion	Promote best practices in cyber security and IT service management area to pursue a unified model for ICT services	Running
		ITIL Certification	ITIL certification plan for all the staff	Running
		PhD program on Social Engineering	Startup of a PhD Program on Information Security themes in the area of Social Engineering	Running

INITIATIVE	PROJECT AREA	PROJECT TITLE	DESCRIPTION	STATUS
14 - Research support and research data compliance	Research Data Management concerns the process of management on research data throughout the entire research lifecycle with the aim to classify, to protect research data against loss, to enable sharing of research data with others, to make research data discoverable, accessible and (re)usable	Research Data Management	In collaboration with ROD, design and implementation of a software and procedural framework dedicated to the management of the entire workflow of research data (e.g. collection, classification, persistency, distribution,...)	Running
	Technological consulting and support for research programs	Research Application System	Support for analysis, design, and implementation of research projects software solution (e.g. EWA, Teletatto, ...)	Running
		Research Infrastructure Support	Support for analysis, design, and implementation of research projects infrastructure solution (e.g. HPC, ICUB wifi, 5G connectivity)	Running
15 - Digital Content Infrastructure	Enterprise Content Management: technologies for capturing, managing, storing, preserving, and delivering content and documents related to business processes with the aim to reduce the use of paper	Digitization Project	Implementation of a platform for document and process management with coverage of the major IIT administrative processes	Running
	Digital Content	Web content infrastructure support	Web content infrastructure support (e.g., Intranet, websites, newsletter)	Running
16 - Administrative Data Management	Management information systems development: increase the value and improve business efficiency by proving support in developing IT solutions for specific business area taking care both the technical aspect and the organizational ones	Projects&IP Management System	Design and development of dedicated solutions for managing life cycle, budgeting, and financial aspects of Institutional&Commercial projects, Patents, and Licenses	Running
		ERP & Satellite Administrative Systems	Sap evolution. Analysis, design, and implementation of solutions supporting administrative vertical processes (e.g. asset management, PhD management, HROD processes such as budgeting, payroll, recruiting&promotion)	Running
		Scientific Facilities Management System	Design and development of an integrated platform for scientific facility management (ILAB solution for EM, MC, NIKON-center; EDLMS for EDL Facility; MMWS for Mechanical facility) both for operational and administrative processes	Running
	Corporate Data Knowledge: improve data management, governance, and integration in order to develop a unified knowledge framework and spreading a data asset culture within the Foundation	Corporate Data & Knowledge Project	In collaboration with HROD, MCO and ROD. Performing AS-IS analysis and definition of TO-BE scenario with the identification of master data management systems; Definition and implementation of (i) the reference technological framework designed, (ii) clear, unified data semantics, (iii) integration services to cover existing and newly information systems mainly in the administrative area	Running
17 - Up-to-dated Infrastructure	Business data services	Enterprise Service&Data Bus	ETL & Data management and ESB infrastructure enforcement and enhancement in order to monitor, log and orchestrate business to business data services	Running
	Corporate basic services	Network Assets Upgrade	Technological upgrade for network assets (core levels, distribution, and access points) to achieve cutting-edge level of service	Running
		Phone services upgrade	Phone services: call manager upgrade and softphone technology	Running
		IIT centre ICT services	Define a common model that guarantees a standard set of base ICT services in all IIT centres	Running
		Virtual Infrastructure	Advanced virtualization approach: container technology	Design
		Identity Management	Improving centralized system for identifying, authenticating and authorizing individuals or groups to access IIT systems and services by automated tools supporting, among the others, accounts provisioning and de-provisioning, rights access management, and delegation processes	Running
		Email service	Feasibility study for in house vs. outsourcing email services management	Running