

FONDAZIONE BRUNO KESSLER
Human Resources Service

2016 – 2018
STAFF PLANNING DOCUMENT¹

¹ This Staff Planning Document (*Piano Programma*) – in its implementations determined by the dynamics of institutional and technical discussion with the Autonomous Province of Trento on the economic and financial dimensions of the Program Agreement – has been validated by the Foundation’s Board of Directors during the sessions of: December 14 2015, February 12 2016, April 1 2016 and, lastly, July 15 2016.

The Planning Document is divided into two parts; a first descriptive part is subdivided into 4 items (1. Framework 2. Critical issues; 3. New management model; 4. Objectives, strategies, actions) and a second part, the Addendum, which complements the first with detailed data and information.

Introduction

In the transition from an economic and social model strongly driven by Europe and Western countries to a multipolar model with multiple anthropological and development paradigms, also the dimensions of scientific research and innovation are heavily modified with respect to their traditional configuration.

The main changes have to do with: the proliferation of players and stakeholders related to the "knowledge system"; with the growth in the number of domains addressed by investigation and applied research; with the advancing of the technological frontier in the dimensions of the infinitely large and the infinitely small.

When such transformations are not reflected on the same ontological statute of scientific activity, they have a significant impact on the organizational and operational models of the latter, on the infrastructures dedicated to it, and, not least, on the professional status of personnel on which the research and innovation system relies on.

The provincial research system, and therefore the Foundation, as "part" of a national and supranational system, are fully involved in these transformations.

Transformations that - impacting precisely on infrastructure, organizational models and the working conditions of those involved in knowledge and innovation themselves - trigger unavoidable adaptation and reaction processes.

In the cycle of reactions and adaptations typical of the big transitions, scientific organizations and the human capital they express are both object and subject of change until they become a determining element.

Fondazione Bruno Kessler as well invests and believes in this "determinant"; this, to the end of interpreting well their mission and to provide the necessary support for innovation to a local and national community that grapples with a long and delicate economic and social stage.

The Planning Document for the Foundation staff is at the same time a reading and a management tool of the attention to its human capital. A reading to be seen as necessarily open to continuous contributions and additions by the research players, the stakeholders, social players themselves, and as a management tool to be kept constantly monitored and evaluated.

1. Framework

Personnel policies support and adapt to the strategic management of the Foundation; they ensure and align to it the necessary intellectual capital: human, organizational, and relational.

In this perspective, personnel policies must fit in and be interpreted in the broader context of the provincial scheme for research and innovation² and, in turn, in the coordinates of the national research scheme and in that of Horizon 2020.

The Autonomous Province of Trento multi-year plan for research - acknowledging the data of the transformation of the paradigms on which the scientific and technological research was traditionally organized - calls for a transition in the name of change.

As for personnel policies, the coordinates along which the Foundation is called upon to interpret this change move toward:

- An increased integration with the main players of the research and innovation system;
- a greater interconnection with local producers;
- a stronger investment on the national and international scientific networking;
- a more marked attention to social innovation;
- a closer link between research, innovation and education in order to also ensure more knowledge workers to the market;
- a systematic use of evaluation systems and, in particular, of the Research Quality Evaluation of the National Agency for Evaluation of the University and Research System.

2. Critical issues

The reading of the framework relating to the Trentino research system and its determinants must face some critical factors respectively represented:

- by a constitutional and financial reorganization that had been started with the reform of Title 5 of Part Two of the Constitution, which is still underway³;
- by the continuing economic and financial crisis that the "Country system" is facing and the subsequent review of the development and welfare models;
- by the reform of the labor law and in particular by the resorting of those types of contract of which the organization of research activities has often made use.

² Multi-year scheme for Research for the 15th legislature approved with Province Council resolution no. 1229 dated July 20, 2015.

³ Constitutional Act n. 3 dated October 18, 2001.

Without getting into the specifics of the above critical areas, we will just stress the increasing difficulties of the Trentino special autonomy - and that of differentiated autonomy regions in general – in confirming both its institutional peculiarities in the future, compared to a regionalism model, which is increasingly characterized by conditions of widespread special status elements, and the originality of its financial system and the substantial allocations of resources guaranteed by the latter.

The Foundation - and more generally the Trentino research and innovation system – can grasp the not only recent regulatory implications of these developments from the gradual erosion of the organizational and financial autonomy that was originally recognized to it, and in the cuts in funding that is primarily ensured through the Plan Agreement.

With specific reference to the economic and financial crisis, we cannot underestimate the effects that come from this due to the predominantly "derivative" nature of the Province finances; nature that - in the gradual emergence of the fiscal federalism design started in 2009⁴ – increasingly relates public budgets to the actual economic ability of the Province context to generate tax revenue⁵.

In this context - in which inevitably income redistribution policies increasingly attentive to social and economic priorities will assert and consolidate themselves - scientific and research institutions will have to demonstrate their effective role as a driving force of development and growth also converting their reputation in tangible and unanimously recognized economic and social value.

Finally, as for the recent labor reform (Jobs Act) and its intent to encourage the use of permanent employment contracts, we stress a significant limitation of the area in which we will be able to make use of those "project-based" agreements that are particularly suited for the regulation of recurrent types of assignments in science⁶.

In this context, many educational and professional options offered by the Foundation are already under revision in compliance with the characteristics of the new employment law system and with the specific functions performed by the latter along the system of higher education

3. New management model

⁴ Enabling act n. 42 dated May 5, 2009

⁵ ECONOMIC FINANCIAL CONTEXT: Addendum page 4

⁶ COLLABORATION CONTRACTS TREND: Addendum page 11

Given the very critical elements now emerging for the future, the Foundation - to better interpret the context of research and the directions that, in this context, have been indicated - has revised its operational model with special regard to personnel management, its main asset as well as its most important cost item⁷.

Securing its strategic dimensions, i.e. economic sustainability and organizational autonomy depends on the effectiveness and efficiency of the organizational and operational model adopted

Based on these assumptions, at the initiative of the President, the Secretary-General and the Human Resources Department, discussions with the relevant Province offices had been initiated, intended to:

- provide certainty with respect to the minimum funding level of the Program Agreement;
- recognize and code rules based on principles of accountability and organizational and management autonomy;
- rationalize and simplify administrative requirements;
- define a system of rules that are simpler and more suitable to manage the special features of timing and other needs related to recruitment, to the incentive and career systems, to inter-institutional mobility and research related business travel.

Upon this discussion - discussion reflected in the provisions of Province directive no. 1633 of September 28, 2015 - the organizational and operational model adopted by the Foundation in the context of human capital management will have the following features⁸:

- organizational and financial autonomy within the limits of economic sustainability;
- multi-year planning capability of the most important dimensions of staff (recruitment, progressions, incentive systems and related costs);
- introduction of the "staff unit equivalent points" (*POEs*) to implement staffing planning in its structural dimensions ensuring economic sustainability over time based on the trend of the Program Agreement and on the relevant constraint, set in the percentage of 75%, relating to permanent staff personnel costs;
- flexibility and autonomy in the management of turn-over and mobility of permanent staff;

⁷ STAFF CONTRACTUAL AND ECONOMIC DIMENSION: addendum page 3

⁸ DISTINCTIVE PROFILES OF THE ORGANIZATIONAL AND OPERATIONAL MODEL IN THE HUMAN RESOURCES AREA: Addendum page 2

- No allocation constraints – in capital account or for current expenditure – in the allocation of both institutional and commercial revenue.

4. OBJECTIVES, STRATEGIES, ACTIONS

The strategic objectives⁹ related to the context, the critical issues and the features of the new operating model can be listed as follows:

- Governing change in a context of economic and financial uncertainty;
- Participating in the streamlining of the Province research and innovation system;
- managing the potential of human capital in a system logic;
- updating and directing contracts in the job area;
- implementing result verification systems.

The actions arising from such strategic objectives - which make up an organic and precise¹⁰ system - can be summarized as follows:

- Three-year plan for the recruitment of permanent positions and organizational or regulatory adjustment of staff¹¹ based on the trend of the Program Agreement and the Provincial Budget¹².

Planning is defined autonomously by the Foundation in the limit of 75% of the Program Agreement and according to the equivalent number of employees "point scheme".

The plan is updated annually in connection with the budget of the Foundation and has a three-year horizon.

After collecting the needs of the scientific domains of the Foundation and acquiring the necessary information from the "human resources" function, on the initiative of the President and the Secretary General, the Board of Directors establishes the areas in which to invest¹³.

The 2016 - 2018 plan has been postponed relative to the approval of the 2016 budget in view of the process - negotiated by the governing bodies of political and administrative policies of FBK and PAT in the spring / summer 2016 - of rationalization of resources devoted to the Program Agreement.

⁹ Addendum page 5

¹⁰ Addendum page 7

¹¹ 2016 – 2018 PLANNING: Addendum pages 19 and 21

¹² PROGRAM AGREEMENT TREND and ESTIMATE OF MARGINS FOR INVESTMENT ON STAFF COSTS IN POES: Addendum page 17

¹³ NEEDS: Addendum pages 22 and seq.

The program takes into account the Agreement program cut reduction and other savings that have arisen (turn-over and inter-institutional mobility).

By decision of the Board of Directors, planning has been conservatively weighted in approximately eighty percent (80%) of the financial sustainability, and therefore below the constraints established by the provincial directives on staff¹⁴.

The planning will still be updated annually on the basis of lower costs in *POE* scenarios arising from the quotas of positions that could be assigned to permanent staff (vertical progressions) or from the assignment of permanent positions to internal temporary staff whose costs fall on the Program Agreement;

- management of "savings" of the 2013 – 2015 Improvement Plan within the Administration and Support Services Division¹⁵ (CASSR);
- interinstitutional mobility programs and science and technology "fertilization" in the context of the Province system¹⁶;
- roles and skills development in relation to the two main categories: researchers and innovators as per the HR actions planning described in the Addendum¹⁷;
- integration of the training and higher education system¹⁸;
- incorporation of *Create-Net*¹⁹;
- integration of operational and support functions with *Hub innovazione trentino* (HIT) and Fondazione Edmund Mach (FEM) as per HR planning described in the Addendum²⁰;
- renewal of the Collective Labor Bargaining Agreement for research Foundations described in the Addendum²¹;
- renewal of the management scheme for collaborations pursuant to the provisions of the FBK-Trade Unions Agreement dated December 11, 2015 and subsequent decentralized agreement²²;

¹⁴ Addendum page 18

¹⁵ MOBILITA' INTER-ISTITUZIONALE CASSR: Addendum page 8

¹⁶ IPOTESI DI SCENARIO: Addendum page 9

¹⁷ Addendum page 14

¹⁸ Addendum page 15

¹⁹ Addendum page 13

²⁰ Addendum page 15

²¹ Addendum page 10

²² Addendum page 11

- Reorganization of the reward and incentive system as per the HR planning described in the Addendum²³.

In this context, the character of the function ensured by the Human Resources Service should also be made explicit; a function which – in that is relevant in an organizational context centered on the value of human and intellectual capital - must be articulated in a "business partner" logic without acting as a substitute for the responsibilities of those decision makers to whom the accountability of the purposes for which the "Foundation" enterprise has been intended: the Board of Directors, the Scientific Committee, the Secretary General, the Scientific Management.

The orientation - also operational - aimed at refocusing future strategic decisions regarding personnel on the corporate governance of the Foundation should contribute to maximize the extraordinary character of these choices should have in a transition characterized by such complex traits as those described above.

The orientation in question, always as far as the staff is concerned, will also inspire the relationship with the line leaders (Center and Unit Managers) from which a greater focus on the priorities on which scientific reputation and self-financing depend will be required.

The Human Resources and Research Assessment functions will provide for the validation of the above measures in the terms and arrangements already in use for VQR, for self-assessment, and the assessment exercises required by the Provincial Committee for Research.

²³ Addendum page 12

Fondazione Bruno Kessler

Human capital and planning for 2016 - 2018

2016-2018 Personnel Program Plan
(addendum)

Human capital and planning

FBK's new human capital management model features.
(PAT resolution 1633/2015)

- 1 Organization and finance autonomy within the boundaries of economic sustainability
- 2 Multi-year planning for recruiting, progressions and incentives dimensions
- 3 Flexibility and autonomy in turn over and mobility management
- 4 No revenue allocation constraints

Planning takes into account context analysis and is supported by consequent strategies and actions.

As of today some of these actions propose relevant variables with respect to planning constraints which thus remains temporarily open to multiple scenarios.



HUMAN CAPITAL

dimension | context | strategies | actions

Unità



494

Students



94

PhD students



368

Scientific staff



68

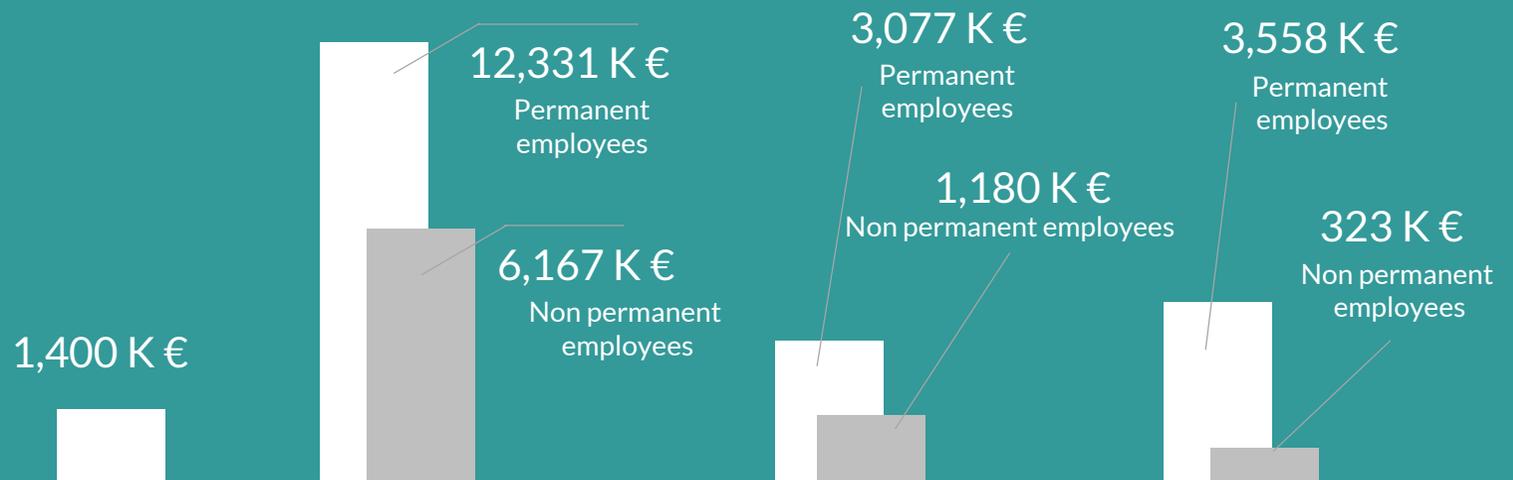
Research support staff



62

Administrative staff

2016 estimated personnel cost



HUMAN CAPITAL

dimension | context | strategies | actions

-590 Mio €



AUTONOMY IN PROGRESS

PAT budget trend
with respect to current budget
Source: PAT Financial Affairs Department

1,4 %



ECONOMIC GROWTH

Local / national GDP differential = 0,2%
Source: IRVAPP/FBK

-3,1 Mio €



PLAN AGREEMENT

Trend over the next three years
Source: FBK Administration Service

-4,33 %



SCIENTIFIC RESEARCH AND DEVELOPMENT EXPENDITURE

Trentino AdP/GDP ratio decrease in three-year period 2014-16
Source: IRVAPP

+20% cost



LABOR LAW REFORM - JOBS ACT

Average cost increase for replacement of collaboration with employment contract
Source: FBK Human Resources Department

-910 K €



FBK SELF-FINANCING

Estimated drop for the next 3 years
Source: FBK Administration Department

HUMAN CAPITAL

dimension | context | strategies | actions

GOVERNING CHANGE IN A CONTEXT OF ECONOMIC AND FINANCIAL UNCERTAINTY.

New FBK and PAT* agreement recognizes:
Certainty on necessary minimum funding,
Financial and organization autonomy..
Directive 1633/2015 and three-year planning.

MANAGING THE POTENTIAL OF THE HUMAN CAPITAL IN A SYSTEM LOGIC

- Improvement plan*
- Mobility*
- Roles and competence development
- Integration of Training and Higher Education chain

PARTICIPATING IN THE STREAMLINING OF THE RESEARCH AND INNOVATION CHAIN

- Incorporation of Create-Net*
- Operational functions integration with HIT and FEM

UPDATING AND STEERING CONTRACT AGREEMENTS

- Collective bargaining agreement renewal*
- Collaboration contracts conversion*
- Reward and incentive systems*

VERIFYING RESULTS

- New performance plan
- Software systems evolution

*Action impacting planning to be da verified

HUMAN CAPITAL

dimension | context | strategies | actions

Concurring to three-year planning

Improvement plan

Mobility

Collective bargaining agreement renewal

Reward and incentive systems*

Incorporation of Create-Net

Actions with variable components relevant for planning

Qualitative relevant actions

New FBK-PAT agreement

Roles and competences development

Collaboration contracts conversion

Integration of operational functions with FEM and HIT

Integration of training and higher education chain

New performance plan*

software systems evolution

HUMAN CAPITAL

dimension | context | strategies | actions

Roadmap

	2015	2016*	2017	2018
New FBK-PAT agreement	Understanding and new protocol development	Actual start and adjustments	Revision	
Improvement plan and mobility	Plan closing	PAT CASSR	FBK CASSR	FBK research
	Reorganization	PAT Research	PAT and FBK Research	
Collective bargaining agreement renewal	Draft preparation and Discussion initiation	Negotiation	Implementation	
		Renewal		
Conversion of collaboration contracts	Unions agreement, conversion planning and start	Bonuses	Conversion ending	
		Conversions		
Reward and incentive systems		Criteria implementation	Method revision	Implementation revision
Incorporation of Create-Net	Preliminary analysis	Implementation	Pending matters management	
Roles and competences development	System development	RESEARCH complete 12/31	CASSR complete	Revision and evolution
	RESEARCH start	Evolution		

* Other actions for 2016: Fem-Hit op. functions and Training and Higher Education chain integration, New Performance Plan, Software syst. evolution

IMPROVEMENT PLAN

CASSR inter-institutional mobility

95 streamlining actions of operational, structure, process methods



OUTPUT

- Improvement of services
 - Cost containment
 - Reduction of staff availability
- 8,17 fte (299 K € for 2,13 POE staff points)
- Impact on planning to be verified



Plan implementation



Output management staff reduction

Cost impact	2016		2017		2018	
PAT CASSR	- € 177 K	- 1,27 POE	- € 177 K	- 1,27 POE	- € 177 K	- 1,27 POE
FBK CASSR			- € 120 K	- 0,86 POE	- € 120 K	- 0,86 POE

PAT SYSTEM «FERTILIZATION» PROGRAM RESEARCH inter-institutional mobility

Critical revision of processes
relating to research and
innovation activities



OUTPUT

- Synergy creation with Province system
- 15 fte (1.017 K € for 7,23 POE staff points) trajectories useful to Province system
- Impact on planning to be verified



Individual trajectories
misalignment mapping
and evolution of strategic
research development lines



Misalignment mapping
implementation and
synergy initiation with
Province System

Cost impact	2016		2017		2018	
PAT Research	- € 141 K	- 1,01 POE	- € 568 K	- 4,08 POE	- € 568 K	- 4,08 POE
FBK Research			- € 439 K	- 3,15 POE	- € 439 K	- 3,15 POE

Collective bargaining agreement renewal

2007

Agreement signing

2009

Latest wage adjustment



REGULATION ADJUSTMENT TARGET

- Regular maintenance
- Inter-institutional mobility recognition
- Roles evolution and job descriptions
- Innovation of reward and incentive systems

ECONOMICAL DIMENSION

Margin of adjustment 3,4 % on 7,4 % theoretical (ISTAT index for contract gap period), equals (estimate for 2015) to 727 K Euros of which 552 K € for permanent staff.

Uncertain impact on planning.



Conversion of collaboration contracts

The Jobs Act modifies contract types



Criticalities linked to widespread use of project-based collaboration contracts



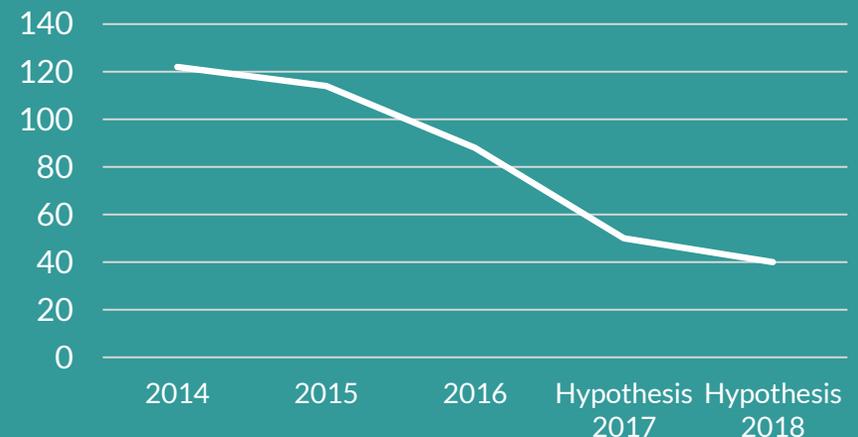
GOALS

- Protection against potential lawsuits (“hetero-organization” ambiguity)
- Minimum use of project-based collaborations («genuine» collaborations remain)
- Financial sustainability

ACTIONS

- Trade Union agreement
(average cost 25 K € vs 35 K € per employee)
(lowest cost in 2016: 870 K €)
- Conversion plan

Collaborations trend



Reward and incentive systems



CURRENT SYSTEM

Performance bonuses are recognized based on quantitative measurement of individual performance and of the performance of the group of affiliation «standardized» by discretionary evaluation of the supervisor.

Performance quantitative measurement determines 78% of individual performance bonus (compared to 46% before 2014) and can be integrated due to special merit through a dedicated incentive system.

DIMENSION

Structured rewards fund € 1033 K (6% wage bill);

incentives fund € 350 k.

Impact on planning to be verified.

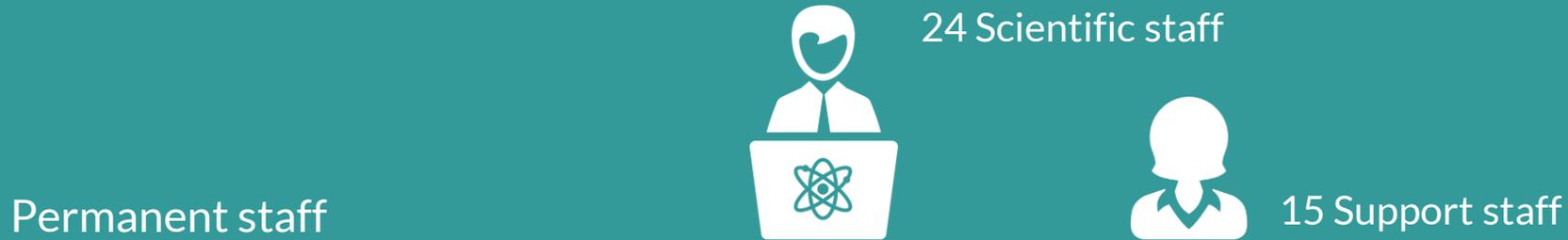


FURTHER EVOLUTION

Reduction of residual non merit-based margin of bonuses.

Conversion of reward and incentive system to «individual reward share (MBO)».

Incorporating Create-Net



Staff costs (permanent) € 2,641 K*

AdP Funding € 2,623 K*

Self-financing € 3,743 K*



Permanent staff cost difference for migration to CCPL (Foundation employees provincial collective agreement) € 107 K*

Impact on planning to be verified.

* Data as of March 2015

Roles and competences development

HUMAN CAPITAL

Recognize the value of people and their competences beyond job descriptions.



TARGET

Contribute to transforming knowledge in economic and social value.

ACTIONS

- Mapping distinctive competences to be associated with roles in adherence with FBK's institutional mission (research and innovation).
- Steering recruitment and professional growth keeping in mind the value of human capital and the strategic goals of the institution.
- Creating a platform dedicated to competence management (HR/ICT and local business joint venture)

70% of staff on payroll of which
100% research staff as of 06/30/16



Other 2016 actions

INTEGRATION OF FEM AND HIT OPERATIONAL FUNCTIONS

Planning and implementation

EVOLUTION OF SOFTWARE SYSTEMS

Development of predictive checks systems

TRAINING AND HIGHER EDUCATION CHAIN INTEGRATION

- Identification of tools and contract types to support youths from orientation to doctoral degree
- Agreement for the “inter-generational contract”
- Creation of an FBK scientific expertise certification platform (HR-ICT and local business joint venture)

NOTE: Significant qualitative impact and limited economic impact actions

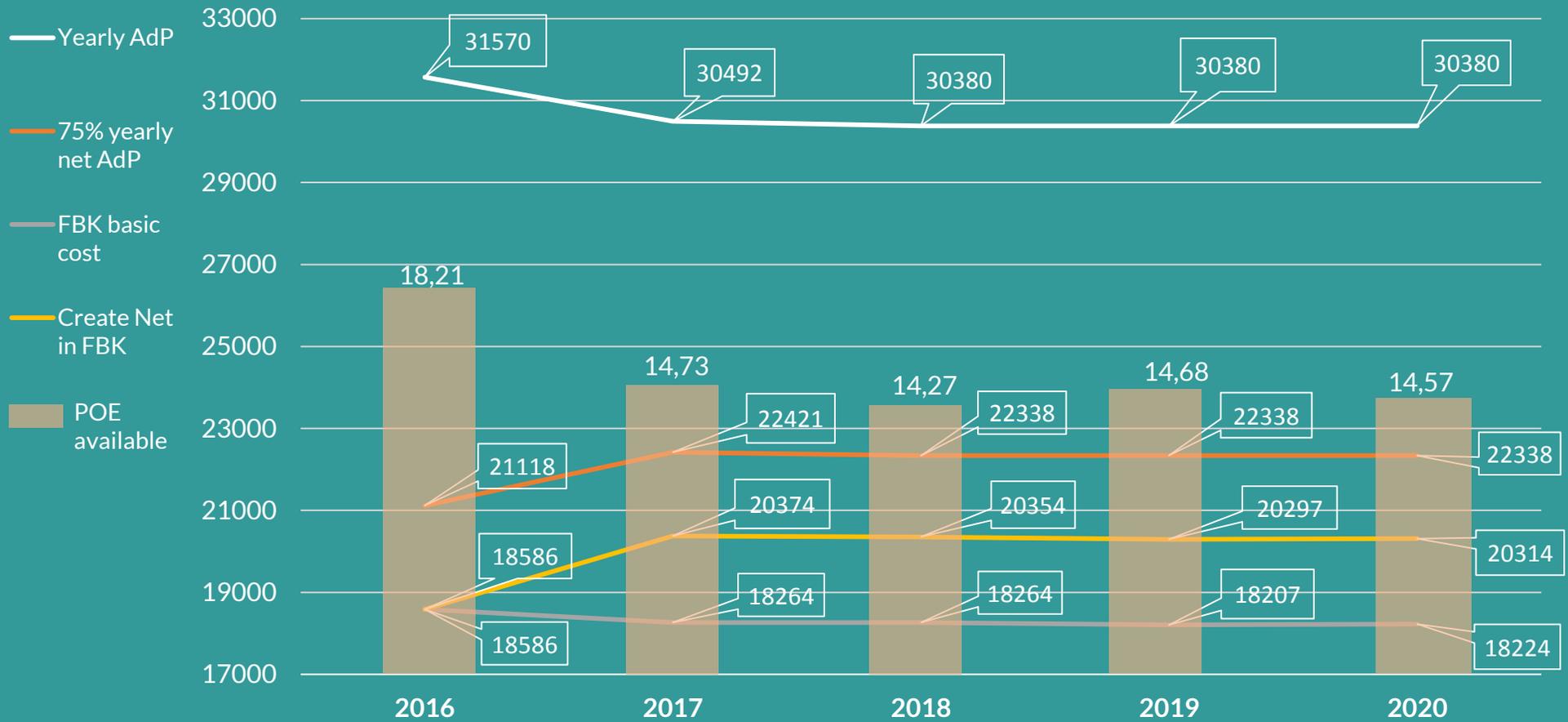
POE staff unit equivalent point value (1= 139K Euro)

Research and research enhancement		
Level	POEs	Contract class level
1^	1	Dir., R1, T1
2^	0,72	R2, T2, Quadri, Redattori
3^	0,61	R3, T3
4^	0,41	R4, T4, A2
5^	0,27	A3, A4, A5

Administration and support services		
Level	POEs	Contract class level
1^	1	Dir., R1, T1
2^	0,72	Managers, editors
3^	0,61	R3, T3
4^	0,41	R4, T4, A2
5^	0,27	A3, A4, A5

PROGRAM AGREEMENT TREND

Constraints to personnel costs and POE availability



POE staff unit equivalent point planning criteria

Takes account of two constraints:

- Compliance with directives → 14,27 POEs
- Financial sustainability → 8,64 POEs

Planning for the three-year period 2016 – 2018 tentatively aims at 80% (7.24 POEs) of financial sustainability.

Open and international calls with FBK assessment (60%) → about 3.61 POEs

ERC direct calls (40%) → about 2.38 POEs



POE USE

recruitment (calls, including ERC calls) and organizational/regulatory adjustments



POE Use	2016	2017	2018	Total	%
Calls	3,21	0,80	0,40	4,42	61 %
ERC calls		0,97	1,29	2,26	31 %
Org/regulatory adjustment	0,56				8%
Total	3,77	1,77	1,69	7,24	

Position distribution by Centers

	Lev 1 POS	Lev 2 POS	Lev 3 POS	Lev 4 POS	Lev 5 POS
2016					
ICT Center		3	1	1	
CMM Center			2		
IRVAPP Center					
ISR Center					
2016 total		3	3	1	
2017					
ICT Center		1			
CMM Center			2		
IRVAPP Center			1		
ISR Center					
2017 total		1	3		
2018					
ICT Center	1				
CMM Center			1		
IRVAPP Center					
ISR Center			1		
2018 total	1		2		
Dopo il 2018					
ICT Center		2	1		
CMM Center			1		
IRVAPP Center					
ISR Center					
2017 total		2	2		

Units
2016
85,14
67,33
5,00
3,00

2017
86,67
66,76
5,00
3,00

2018
87,50
66,76
5,00
3,00

Current POE distribution by Center														
Center	CMM					ICT					IRVAPP		ISR	
LLevel Poe	1	2	3	4	5	1	2	3	4	5	3	4	5	3
Resources 2016	3	20	18	12	14	15	18	40	11	2	2	1	1	3

Organizational/regulatory adjustment

- Public vertical and horizontal progressions upon approval of the new organizational chart (Annex no. II/15 to resol. no. 03/15 by the Board of Fondazione Bruno Kessler dated December 14, 2015) – Category A;
- Horizontal progressions as per commitments made by the Foundation for the implementation of yearly program plans suspended since 2012 (as per PaT resolution 2505 dated 11.23.2012) – Category B;
- Vertical progressions as per review of contract classification for higher tasks – Category C.

Category A	6,332.15 €	5 units
Category B	48,393.73 €	6 units
Category C	22,490.54 €	5 units
	77,215.41 €	16 units

Equal to 0.56 POEs

Competences needed

ICT IRST Center

- ✓ Expertise in the field of language technologies, integration of language technologies and multimedia data analysis techniques, text semantic and pragmatic analysis, persuasion techniques and virality of social media, emotion and sentiment analysis.
- ✓ Expertise in control and monitoring systems, embedded system development techniques, systems for software design, and verification and validation, ICT applications in the energy sector
- ✓ Expertise in security, trust, identity management, cyber security certification and validation techniques.
- ✓ Expertise in Cognitive Computing.
- ✓ Expertise in service platforms, open platforms, system cloud migration, management and evolution of software systems.
- ✓ Expertise in ICT projects, with strong experience in proposal writing and ICT research project conduction, specifically linked to the topics of the 3 lines of research and 3 high-impact initiatives, strong experience and ability to acquire funds
- ✓ Expertise in big data analytics, deep learning for social behavioral analysis, analysis of big data for example for user profiling, risk analysis, analysis of social relations, analysis of social behavior in the city.
- ✓ Expertise in issues of social media analysis, analysis of text and multimedia information in social media, information extraction from social media, recommendation and virality systems, with high-impact initiative management ability.

Competences needed

CMM Center

- ✓ Expertise in design and simulation of integrated systems based on innovative devices and materials. The integration of these systems with silicon wafers and active electronic components involve basic knowledge also in semiconductor physics and crystal properties
- ✓ Expertise in design and characterization of microelectronic devices within single photon detectors and radiation sensors with knowledge in the field of semiconductor physics, design and characterization of electro-optical and functional photo-detector devices.
- ✓ Skills to identify and strengthen methodologies and techniques for the development and characterization of silicon devices functionalized with different treatments (excavation, deposition by evaporation, ALD, different materials, and electrical Piezo resistors, graphene and other).
- ✓ Technical skills to cover regular and special maintenance of all the equipment present in the clean room and in the materials characterization laboratory.
- ✓ Expertise in the development of silicon based MEMS technology with specific knowledge of micromachining processes and L-Edit design.
- ✓ Skills to operate on the topics of energy generation and storage.

Competences needed

ISR Center

- ✓ Expertise in internal innovation of communities and religious traditions and religious contribution to socio-economic, science and technology innovation with special knowledge in the management of religious diversity, conflicts, communication and information technologies and public policies on the religious phenomenon.

IRVAPP Center

- ✓ Expertise in the definition and implementation of research projects – on European, national and local scale - aimed at assessing the impact of public policy measures.

