Camogli (Genova), 12-14 Novembre 2017

6° Summit per la Salute Congresso Nazionale CNETO 2017

"Affrontare le sfide del futuro"
Ripensare il rapporto territorio/ospedale

Ospedale & territorio. Outsourcing and Insourcing

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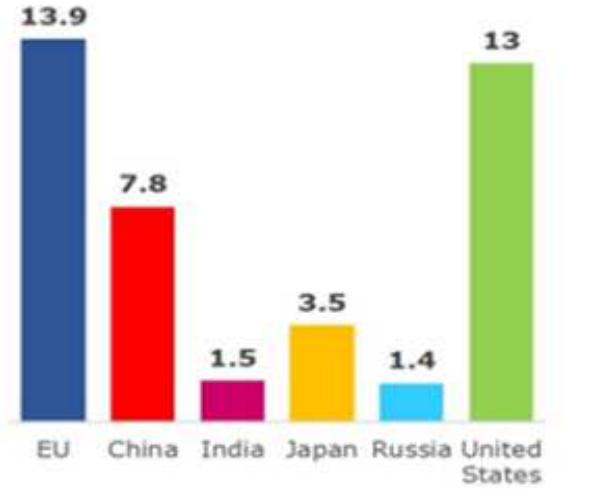
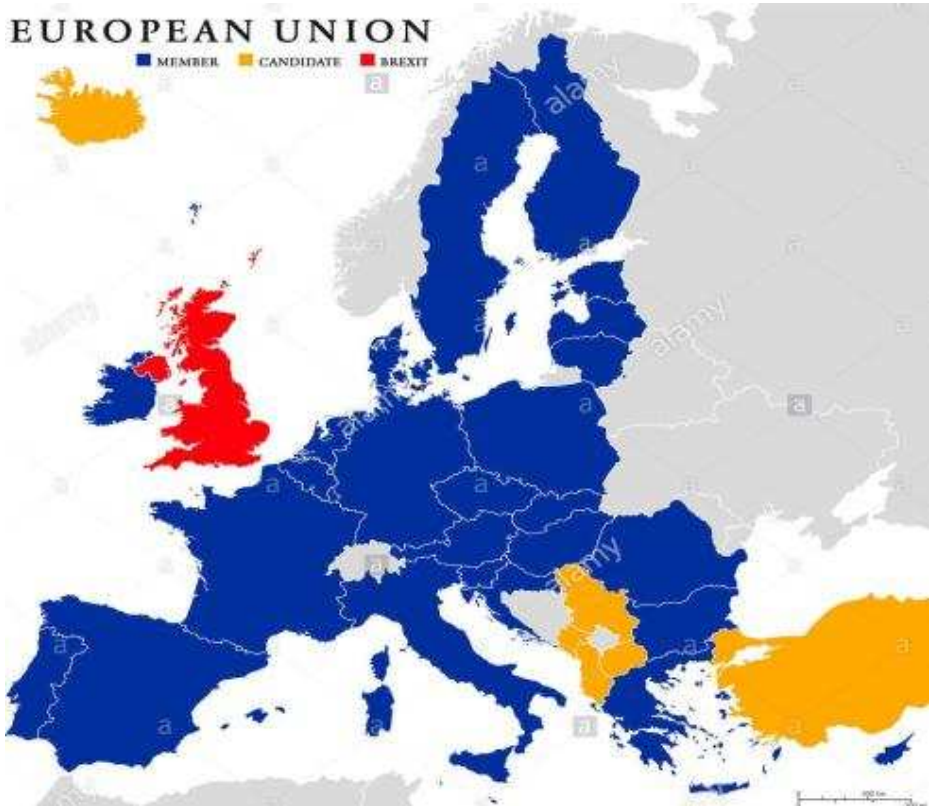
Dipartimento Tecnico

Camogli, 13 novembre 2017

European Union

TOTAL·EU·POPULATION··445·MILLION¶
(POST·BREXIT)¶





Italy and its regions

BASIC DATA

- **Total Population**
  62,007,540 (July 2016 est.)
  Population 0-14 years: 14%
  Population 65 years and older 21,37 %
  Life expectancy at birth years 81
  Healthy Life Exp. at birth: years 73
- **Health Expenditure**
  9.2% of GDP (2014)
- **Physicians density**
- 3.95 physicians/1,000 population (2014)
- **Hospital Beds**
- 3.3 beds/1,000 population (2015)

National Public Health Service

SSN - Created in 1978

Political and social objectives

- **Eliminate an exclusive, bureaucratic and corporate-insurance based welfare, heritage of the pre-war period**
- **Make available for all the social strata an Universalistic Model of Health services, based on a solidarity vision in delivering health coverage, extended to everyone.**

National Public Health Service

Major operational goals:

- Eliminate the inequalities between the healthcare conditions in the Northern and in the Southern Regions
- Tackle the emerging problems of a changing society (urbanisation – ageing – increase demand of health services etc..)
- Face the problem of the poor conditions of the health infrastructures in all the nation

Hospitals by age of Construction
Situation in 1990
Source Ministry of Health

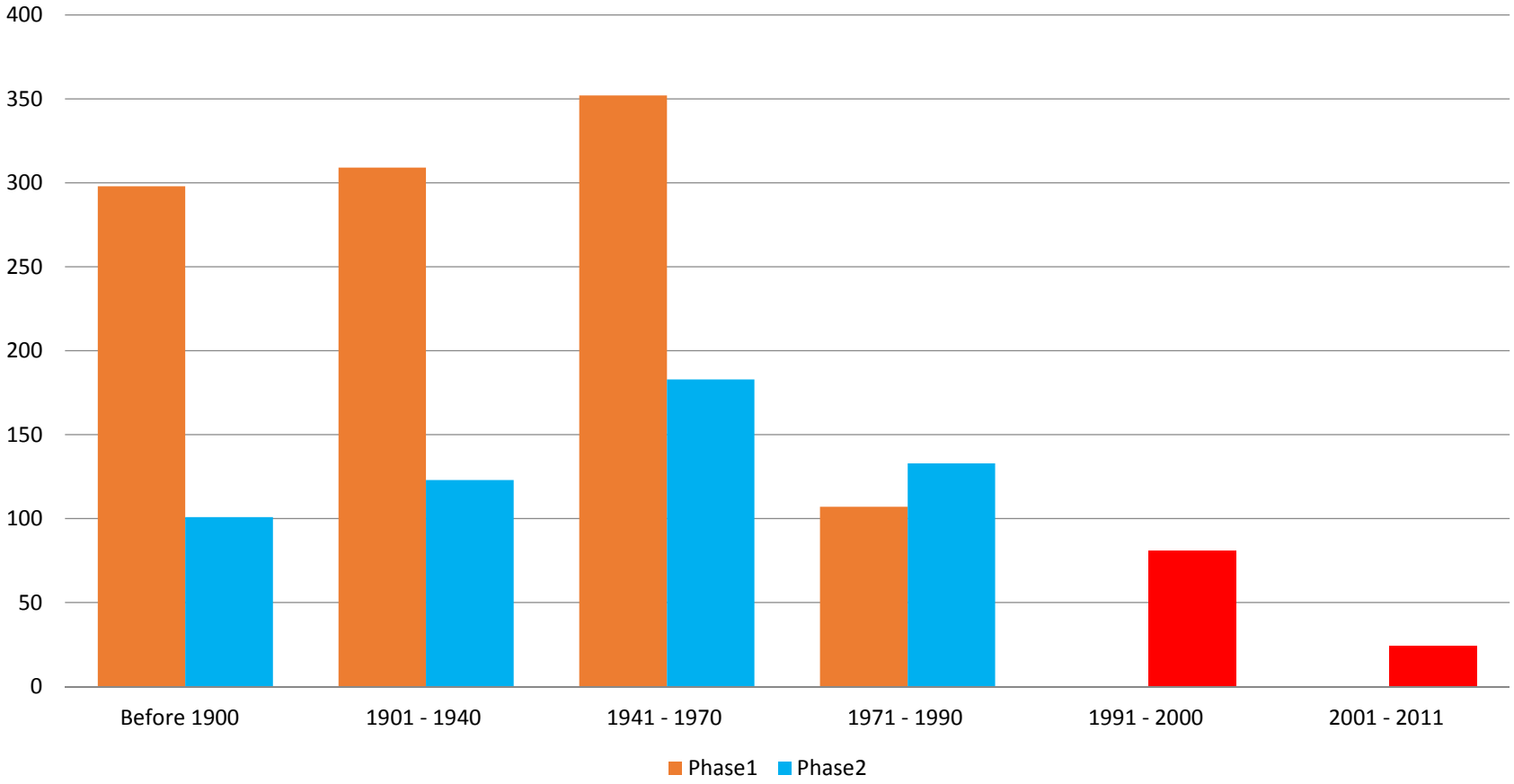
Year construction	Number of Hospitals	%
Before 1900	298	28
1900 - 1940	309	29
1941 - 1960	128	12
1961 - 1970	224	21
1971 - 1980	107	10
TOTAL	**1066**	**100**

Hospitals by Age during the II. Phase of the Investment Programme – 2011 - *Institutional Sources*

Source: Sole24OreSanità

Year construction	Number of Hospitals	%
Before 1900	101	15,6
1901 - 1940	123	19
1941 - 1970	183	28,4
1971 - 1990	133	20,7
1991 - 2000	81	12,6
2001 - 2011	24	3,7
TOTAL	**645**	**100**

Public infrastructure Construction



SITUATION IN 2011

1990 Public Hospitals 1066(*)

2011 Public Hospitals 645(*)

(*) more than50 years old

57% -Down to 34.4%

In total - 421 that is -39,7 %

Parallel beds reduction of 37%

and increase daycare beds

****

Present ratio (2015) 3,3 beds per 1000 inhabitants

Extraordinary Program of Investments in Health Buildings and Technologies

PHASE 1 – UP TO 1996 → **€. 4,855 Billion**

PHASE 2- from 1998 (not concluded jet)

Assigned → **23 Billion**

Not jet Assigned → **1 Billion**

Primary objectives of the Programme

- **Reduce** the gap of health infrastructures between North and South
- **Renovate** the quality and functionality of existing hospitals and/or realise new facilities
- **Complete** outpatient clinics and daytime hospitals
- **Improve** safety standards
- **Strengthen** structures for prevention
- **Realize** 140,000 places in residential facilities for the elderly non-self-sufficient, non suitable for home care
- **Modernise** Technology

Parallel Events

2001

- **The Reform Bill of the second Part of Italy's Constitution produces major changes**
- **Review of The Attribution Of Competences Between State And Regions**
- **The Regions receive more competences**
- **Italy a decentralised Health system**

- **Process of institutional change has been concentrated on the re-definition of roles and powers in the vertical axes of the relations among State an Region, Regions and their local Authorities**
- **In the horizontal axis, theimperative to contain public expenditure, so called "spending review" has heavily conditioned health policy and will continue to do so.**

Emerging Problems

- **The explosion of multiple pathologies, chronic illnesses and lack of self-sufficiency pose major problem and needs of horizontal integration of processes, resources and responsibilities, while the debate on institutional arrangements is all focused on the regulation of vertical hierarchical relationships**
- **The two processes don't match and the vertical can determine obstacles to the horizontal.**

How were the funds allocated

- The funds were distributed through the REGIONS
- On the bases of “PROGRAMME AGREEMENTS”
- In the framework of the “NATIONAL HEALTH PLAN”, structured by the Government in collaboration with the Regions.
- The Regions define the areas of competence of the Local Health Authorities (ASL)

How were the funds allocated

- Poor distribution criteria and dispersion in the first phase of the Programme brought the National Government to create a "Core Group of Experts" to support the regional planning and produce a new methodology and tools.
- After several years of work with the Regions a

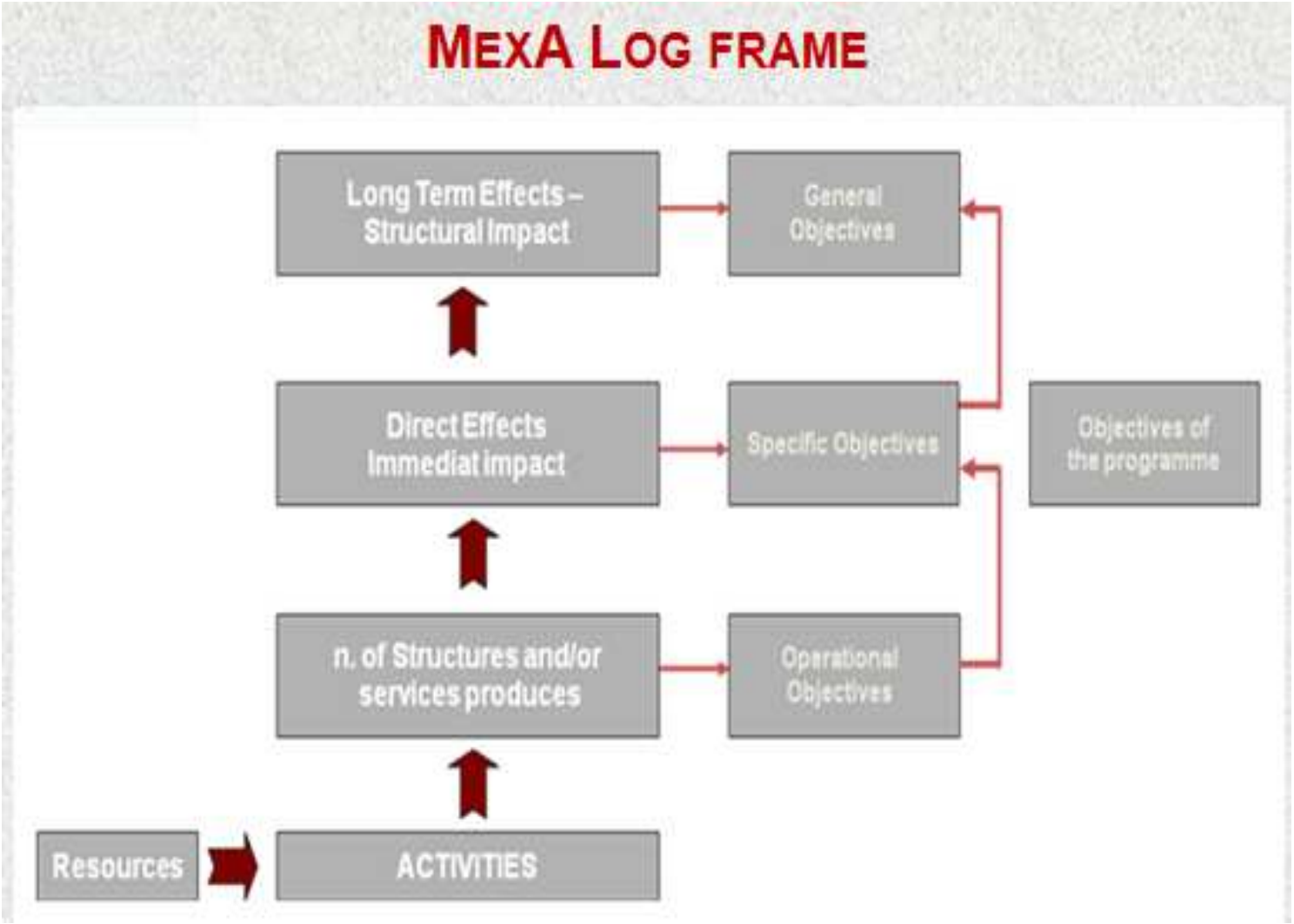
Methodology for ex-Ante Evaluation -MexA

become the guide, also as guide to the Regions with major overspending problems.

Methodology for Ex-Ante Evaluation

- **MexA is applied, In the framework of a State - Regions collaboration,**
- **It's a tool for an interactive and reiterative process, aimed to contribute in providing**
- **Stewardship and Governace of the National Health Service [SSN] in a regionalised system**

MEXA LOG FRAME



The parallel restructuring of the economic financial health sector situation

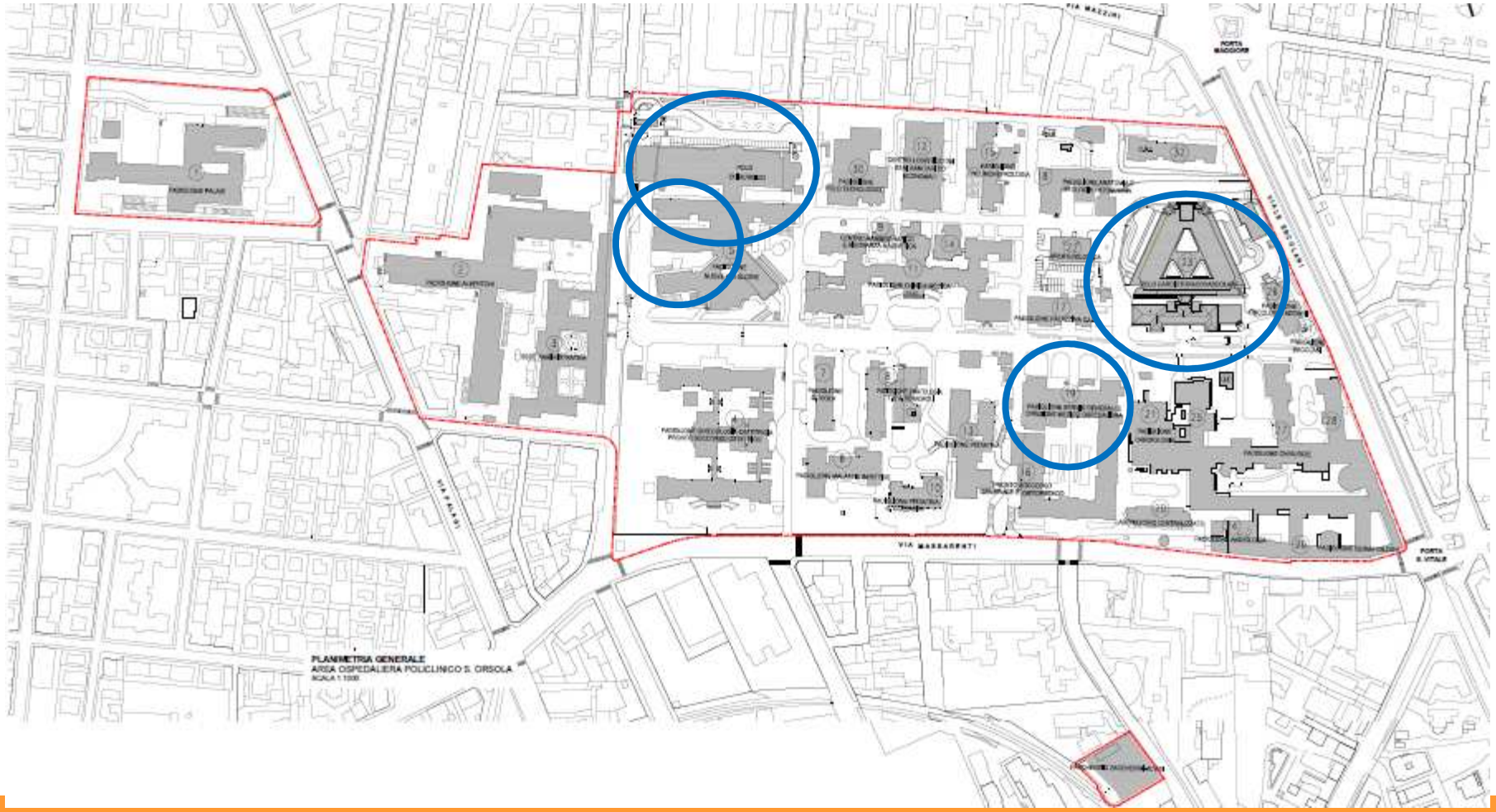
- **Three were the prevailing institutional directive:**
- **merge local authorities, making them cover larger areas and reducing their number**
- **move toward institutional integration of hospital and territorial services**
- **Increase the role of the regional authorities or their support agencies, centralising functions and resources.**
- **More than one hundred architecturally interesting new hospitals (or parts of hospitals) were constructed from 1996 onward.**

Emilia Romagna Region

BOLOGNA (ITALY)

The Bologna University Hospital
Authority St. Orsola-Malpighi Polyclinic

The Bologna University Hospital
Authority St. Orsola-Malpighi Polyclinic



About Bologna University Hospital
Authority St. Orsola-Malpighi Polyclinic

With more than 400 years of history, The Bologna University Hospital Authority St. Orsola-Malpighi Polyclinic was the first hospital in Bologna and today is home to the School of Medicine and Surgery. The Polyclinic is an internationally acclaimed institution for the study and treatment of pathologies and each year organizes medical conferences and conventions attended by professionals of international fame.

The Polyclinic is currently organized into 9 Departments, including 87 Operative Units. It is equipped with 1,510 beds and staffed by 5,153 employees including university researchers and physicians. Every year we handle approximately 70,000 admissions and an estimated 3,000,000 outpatient visits (healthcare) by medical specialists.

The Bologna University Hospital Authority St. Orsola-Malpighi Polyclinic is a garden-city campus in the heart of Bologna. The grounds occupy an area of approximately 1.8 kilometres in length with its Operative Units distributed among 27 pavilions.

An estimated 20,000 people including staff, students, university teachers, patients, visitors and suppliers are present in the hospital grounds on any given day.

Historical outlines

St. Orsola Hospital had its first beginnings in 1592 just outside the old city walls of Bologna. The hospital was initially intended for the exclusive treatment of socially marginalized individuals—hence its location outside the walls. It was subsequently utilized as an infirmary for patients with incurable illnesses.

In 1630 the plague caused a serious shortage in hospital capacity. Therefore a new octagonal infirmary had to be built in the field next to the Hospital.

In 1809 the Hospital counted 273 beds available. The School of Medicine and Surgery at the University of Bologna grew in fame so that between 1860 and 1869 St. Orsola became the definitive structure of social assistance. It was at this point that the old infirmary was transformed into a modern hospital.

In 1929 plans for a new set of buildings began as a result of the steady growth of the hospital facilities and the increasing demand for specialized clinical services and university teaching courses.

By 1960 the Hospital was already endowed with numerous clinical specialties as well as a system of diagnostic services. The hospital now offered a total of 1,510 beds.

As a consequence of the National Health System reform in 1978, St. Orsola merged with the Malpighi Hospital, a large building offering specialized care. Additional pavilions were *built in the '70s on the site of an old asylum for the poor*. New pavilions were built in the last ten years.

Framework and Property

Gross surface area (total)	m²	383.548,00
Healthcare services (total)	n°	**992.218**
Accident and Emergency	n°	141.698
days of hospitalization	n°	478.706
Births	n°	3.411
Surgery Rooms	n°	37
Surgical Operations	n°	33.875

BEDS						
BEDS 2015	Total Beds	1.510	High Technology Beds	203	Medium Technology Beds	1.307
Surgical Beds		493		40		453
Medical Beds		735		68		667
Intensive Care Beds		89		89		0
Long-term care and rehabilitation Beds		97		0		97
Mothers and Pediatrics Beds		96		6		90

Energy Facts

before

With its **17,000 TEP / year** (tons of oil equivalent) of energy consumed and the over **35,000 tons of CO2** emitted into the atmosphere, the University-Hospital of Bologna, Policlinico S. Orsola-Malpighi has energy saving potential

Potenza termica e frigorifera nominale	KW	78.950,00
Sommatoria della potenza elettrica impegnata nelle varie utenze che alimentano le strutture	kW	9.112,00

CONSUMI ENERGETICI	Quantità	
Consumo elettrico	KWh	52.780.000
Consumo di gas	m^3	7.802.000
Consumo di acqua	m^3	510.000

New Energy Plant

Results of energy efficiency (cogeneration / tri-generation intervention)

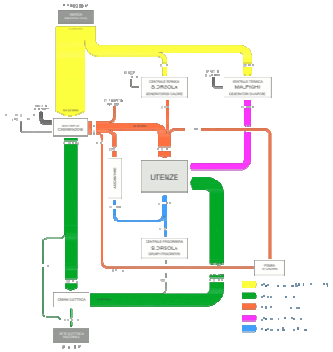
New generation and distribution efficiency, along with the use of energy recovery at each operating stage, leads to 27% primary energy savings and a 22% reduction in gas emissions.

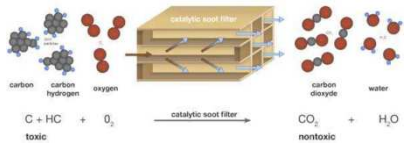
-4.863 Tons Oil Eq/year = -27%

-1.589 t CO2 eq/year = -22%

Risparmio complessivo da progetto	
4.863 TEP/anno	1.589 t CO2 eq/anno
27%	22%

Scenario	Tipologia di energia	TEP/anno	t CO2 eq/anno
Ex ante	Energia primaria richiesta (uso elettrico)	9.779	3.645
	Energia primaria richiesta (uso termico)	8.244	3.519
	TOTALE ENERGIA PRIMARIA RICHIESTA	**18.023**	**7.164**
Ex post	Energia primaria richiesta (uso elettrico)	912	340
	Risparmio di energia primaria (uso elettrico) per restituzione alla Rete Nazionale da sistema di cogenerazione	142	53
	Energia primaria richiesta (uso termico)	12.390	5.288
	TOTALE ENERGIA PRIMARIA RICHIESTA	**13.160**	**5.575**





New Drivers of Change

1. Demographic, Epidemiologic and Social Dynamics
2. Technology
3. eHealth
4. New organisational models
5. Professional Evolution
6. Research
7. Healthcare and Developing Economics
8. Hospital 4.0

This is the general framing

Cardio-Thoracic-Vascular Building

Operative Units in the new building

- Cardiology
- Cardiac surgery
- Pediatric cardiology and cardiac surgery
- Radiology
- Intensive care
- Vascular surgery
- Cardiothoracic surgery
- Pneumology (Endoscopy)

Some Figures of the building

- **40.000 m²**
- **184 Beds (49 Intensive care beds, 135 medium and low care)**
- **6 Surgical Rooms**
- **2 Surgical Hybrid Rooms + 3 Angiographic Rooms**
- **4 Radiologic Rooms, Ultrasound, CT, MRI**
- **15 ambulatories (9 pediatric) + Endoscopy**
- **45 work places for doctors and nurses**
- **2 learning rooms and 2 meeting rooms**

Activity 2016-2017

- **Cardiac Surgery:**

  adults — *year 2016:* **1.040** — *7m 2017:* **671**

  pediatrics — *year 2016:* **256** — *7m 2017:* **159**

- **percutaneous mitral valve:**

  year 2016: **99** — *7m 2017:* **91**

- **Vascular Surgery:**

  year 2016: **728** — *7m 2017:* **519**

- **Cardio Thoracic surgery:**

  year 2016: **260** — *7m 2017:* **198**

- **heart transplants** — *year 2016:* **27** — *7m 2017:* **11**

- **lung transplants** — *year 2016:* **6** — *7m 2017:* **3**

Some personnel data

- 134 Doctors
- 6 Nurses Coordinators
- 322 Nurses
- 77 Nurse Support Staff
- 11 Technical Perfusionists
- 12 Radiographers
- 9 Physiotherapists

Patient centered Healthcare:
The new innovative concept

<u>Organization based on *intensity of care*</u>:

- The hospitalisation of the patients in no longer made by dividing them by departments and specialized wards

- Instead they are organized by areas that aggregate patients according to different degrees of clinical instability and levels of care complexity

- The responsibility of the diagnostic and therapeutic pathway remains in the hands of specialists who work with colleagues from other disciplines for the whole patient care

- Nursing is entrusted to the care management

This model

Puts the patient in the center

Encourages collaboration between doctors

Enhances the role of the nursing staff

Model and Work organisation

Setting	Professional Profile
Pediatric Setting (Ground Floor)	Pediatric Cardiologist Pediatric Cardiac Surgeon Coordinator Case Manager Nurse
Low Intensity of Care (First Floor)	Cardiologist Coordinator Case Manager Nurse
Medium Intensity of Care (Second Floor)	Cardiologist Coordinator Case Manager Nurse
Low Intensity Care Medium Intensity of Care (Second Floor)	Cardiac Surgeon (Patient Care Path) Thoracic Surgeon (Patient Care Path) Vascular Surgeon (Patient Care Path) Case Manager Nurse
High Intensity of Care – Intensive Care (Third Floor)	Cardiologist, Anesthesiologist Coordinator Case Manager Nurse

Previous Situation

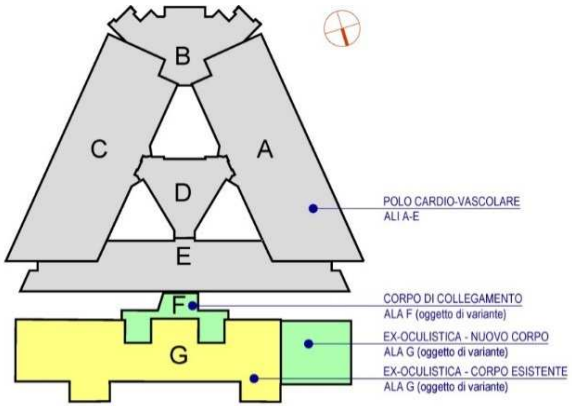
First action:
Demolition - October 2009

Italian surprises: Archeology

600 B.C.

FLOOR	m²	FUNCTION
-2	5.385	CAR PARKING . 94 cars, 44 motor bike
-1	4.691	Imaging, changing rooms, Endoscopy
GF	5.147	Pediatric cardiology and cardiac surgery
1	5.187	Beds – low Intensity of care
2	5.097	Medium and high Intensity of care
3	3.896	Intensive care
4	3.896	Surgical Room, Hybrid Rooms, 3 Angiographic Rooms
5	2.777	Technologic plant
est.	4.823	Esternal buildingd (electric cabin, ecological island, etc.)
	40.899	Total

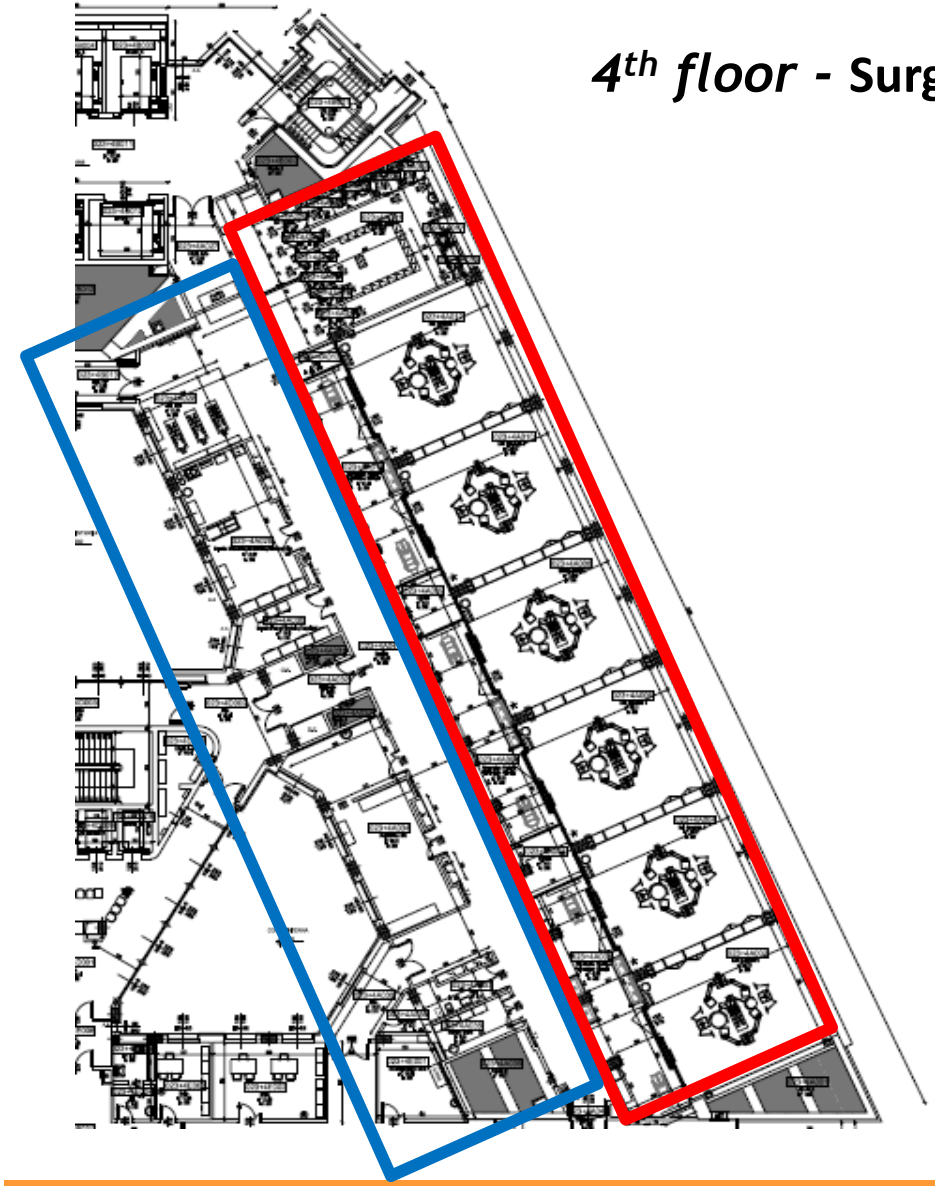
Structure



PIANTA CHIAVE ALI FABBRICATO

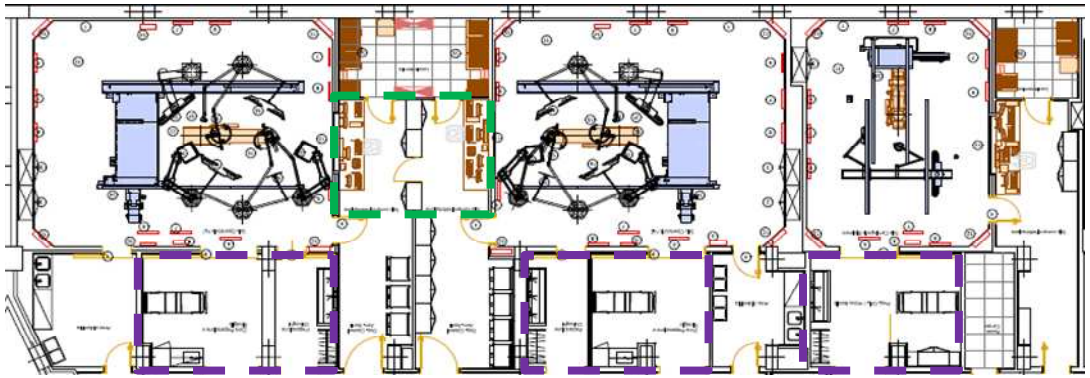
SEZIONE POLO CARDIOLOGICO

4th floor - Surgery Rooms



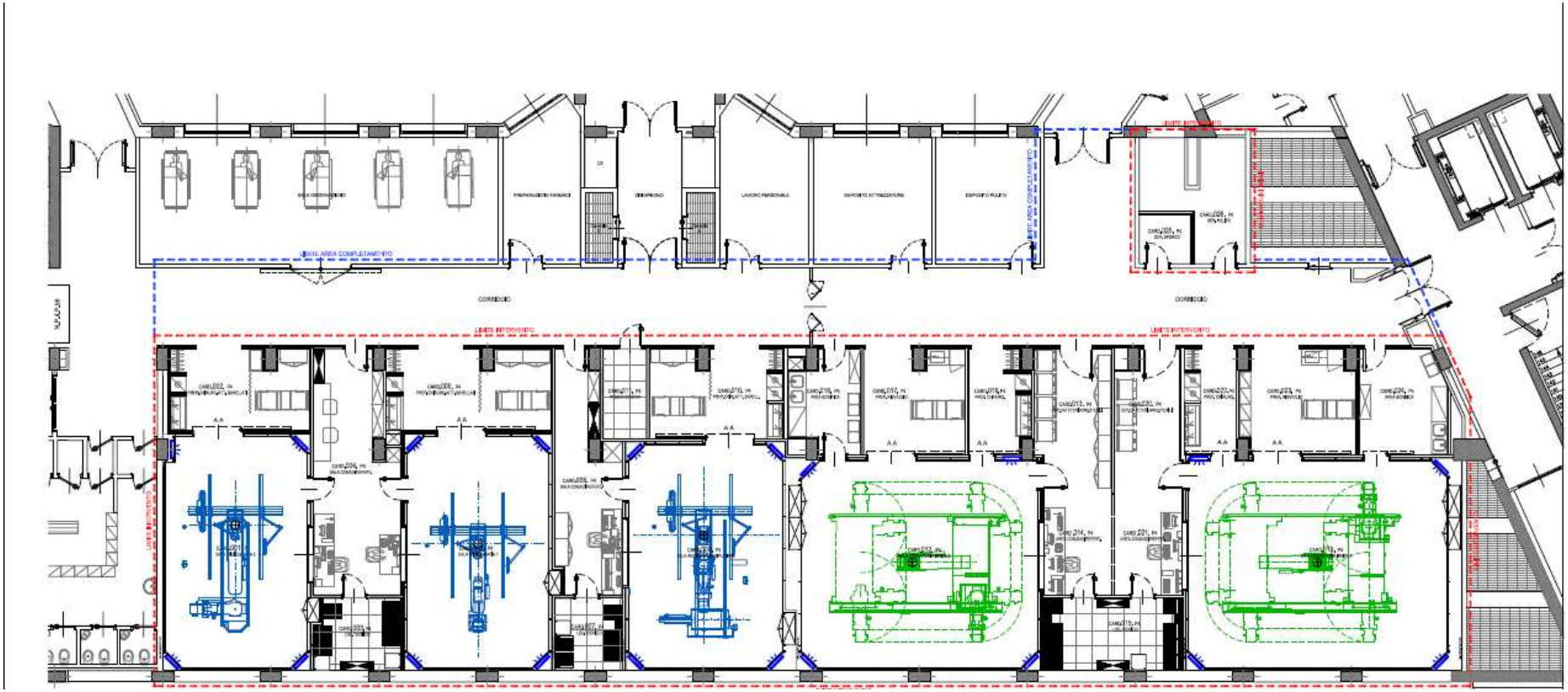
4th floor - Hybrid Surgery Rooms, Angiographic Rooms

Sala ibrida | Sala comandi/refertazione | Sala ibrida | Sala angiografica biplanare



Zona preparazione paziente | Zona preparazione paziente | Zona preparazione paziente

4th floor - Hybrid Surgery Rooms, Angiographic Rooms




MAQUET
MAQUET
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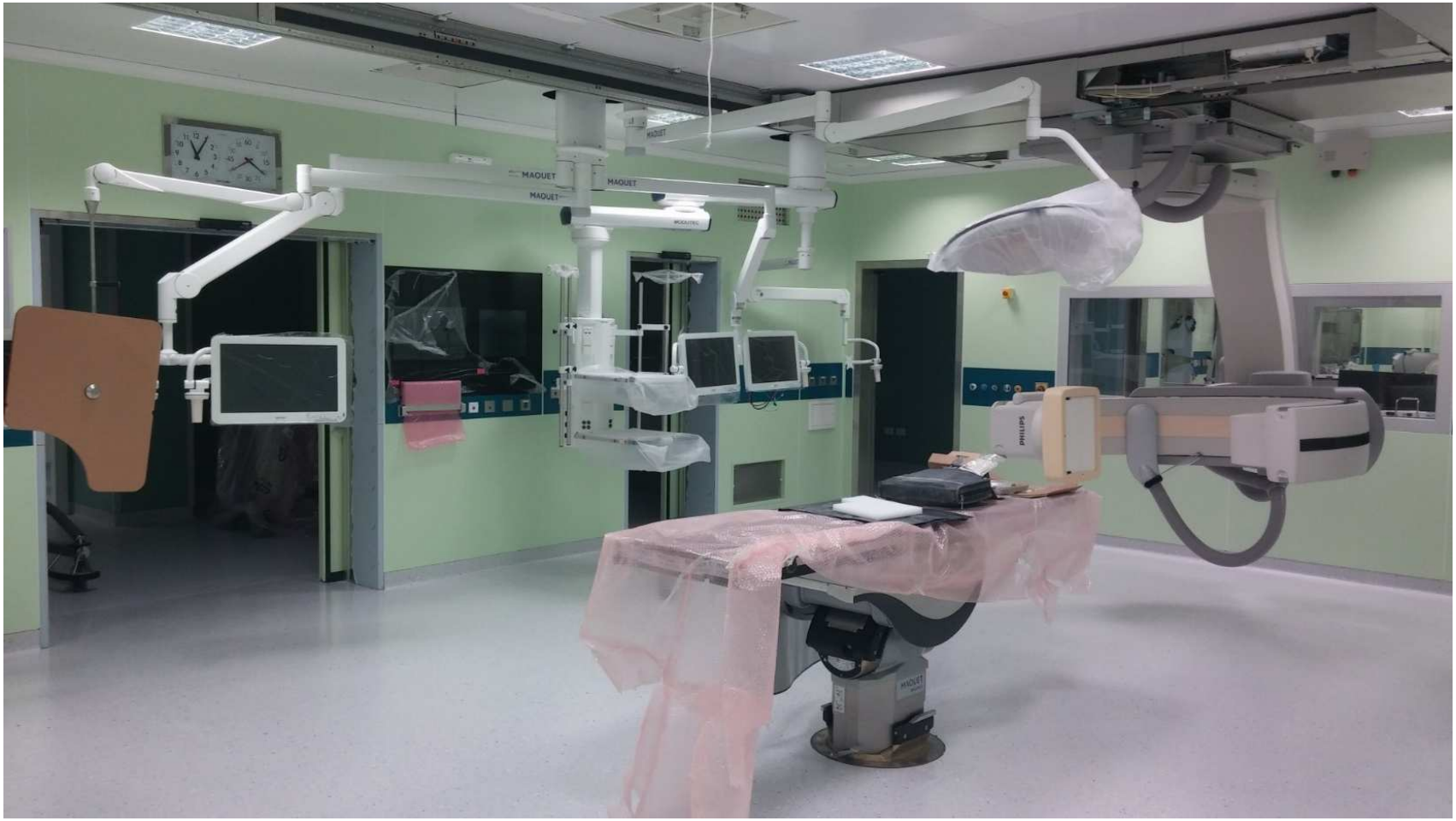
PHILIPS


MAQUET
MAQUET
MAQUET
PHILIPS


MODUTEC
MAQUET


UNA MANO
PULITA
SALVA
LA VITA


Ingresso all'unità operativa
FAI UN PICCOLO GESTO CHE DA GRANDI RISULTATI
QUI
FERMIAMO
I BATTERI
QUI
FERMIAMO
I BATTERI
FAI UN PICCOLO GESTO CHE DA GRANDI RISULTATI

Cost Parameters

Construction and equipment costs- TOTAL €. 91.355.384

Total Cost € / m² – 2.282
Building Cost € / m² – 1.845

Total Cost € / Bed – 496.000

The Conclusions (1)

We have decided to present here, an hospital organised by

INTENSITY OF CARE

because it represent a really innovative model.

It requires, in fact:

- A Totally different approach by the medical staff,

-An holistic organisational approach to the services,

BUT ALSO

- a new understanding by stakeholders/patient in being themselves treated as total persons in the complexity of their care needs.

Conclusioni

La produzione e la potenziale disponibilità dei dati è sempre più elevata, ma la loro condivisione continua a rappresentare una grande sfida, sia per la conciliazione con le normative sulla privacy, sia per la carenza di una strategia di integrazione.

L'integrazione e la condivisione dei dati sono degli importanti traguardi da perseguire.

*La **S.I.A.I.S.** promuove e sostiene da sempre l'importanza dell'integrazione professionale, la progettazione integrata dei sistemi strutturali – impiantistici e tecnologici, l'utilizzo di linguaggi comuni e in questo particolare ambito, la cultura digitale dei professionisti tecnici che lavorano in sanità e la familiarità nell'utilizzo delle soluzioni digitali per incrementare una consapevolezza diffusa e chiara sul problema dei dati e della necessità della loro condivisione.*

***Il* governo dell'appropriatezza delle cure e della loro efficacia, non può prescindere dal presidio dell'efficienza delle strutture e dei loro impianti, compreso tecnologie e sistemi informatici, che assumono nel processo produttivo dei servizi alla salute una specifica rilevanza per la garanzia della salute del paziente, coniugando sicurezza, appropriatezza e gestione delle risorse congruente.**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2017
ABDEH
Associação Brasileira para o Desenvolvimento do Edifício Hospitalar
Event by:

26th International Federation of Hospital Engineering Congress

Roma, Italy
2020, *May, 25 -28*

SIAIS
Società Italiana dell'Architettura e dell'Ingegneria per la Sanità

IFHE
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2020

Thanks

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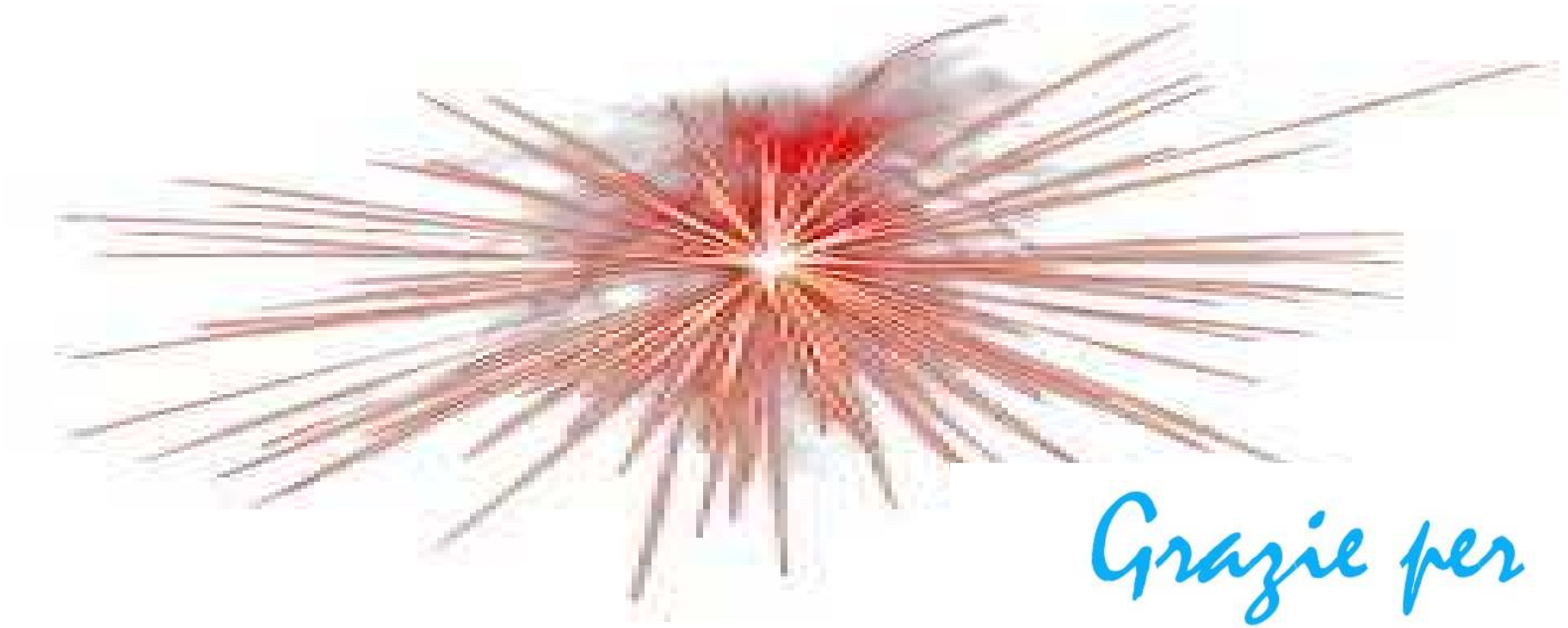

Grazie per l'attenzione