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Telehealth: Towards a Global Decision Support Framework based on Value Creation for Healthcare Systems Design

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TELEHEALTH

Towards a Global Decision Support Framework based on Value Creation for Healthcare Systems Design

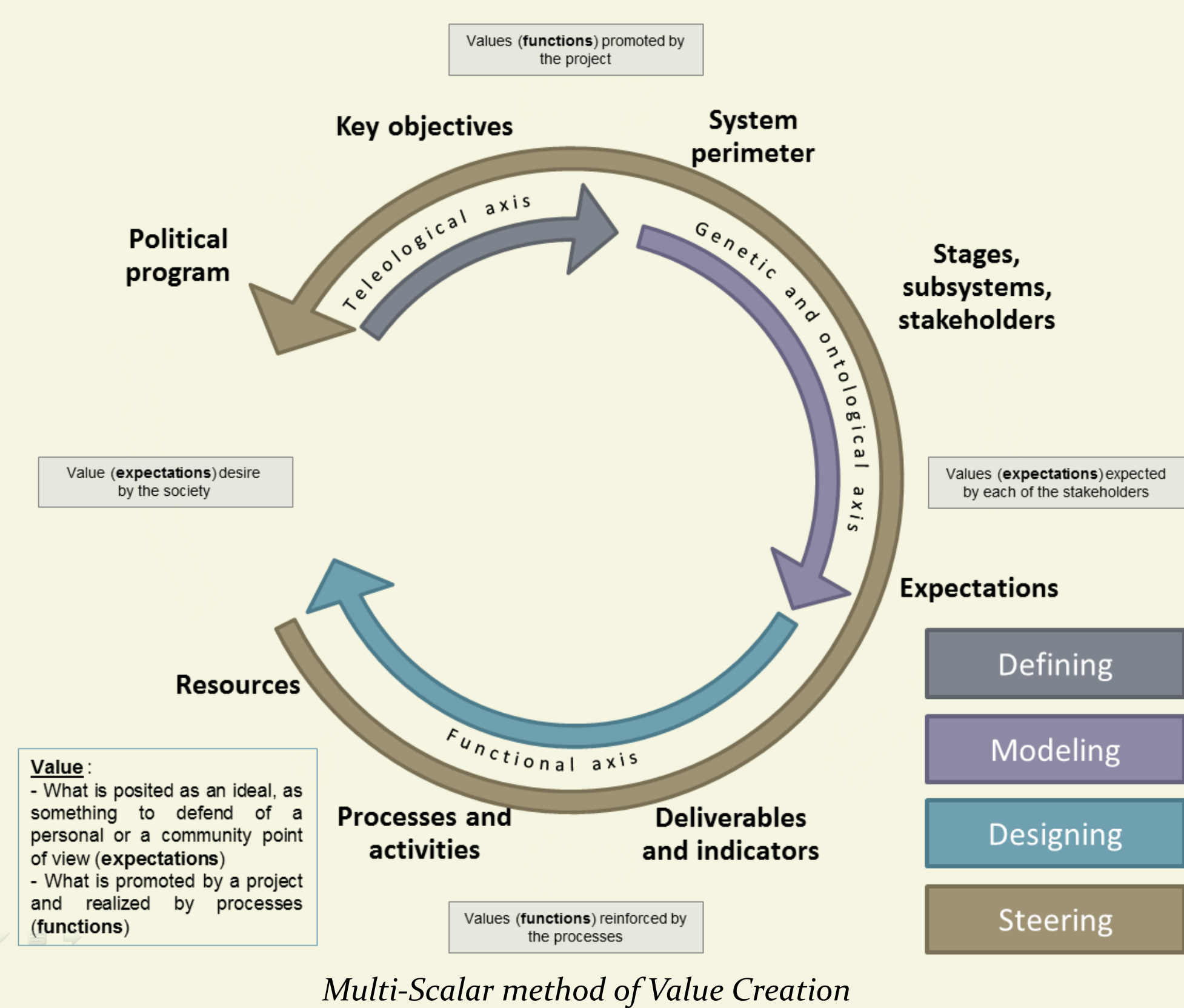
Camille Jean, Pr Julie Le Cardinal, Dr Marija Jankovic, Pr Jean-Claude Bocquet

Research objectives

- Elaborate a new multi-scalar method based on the concept of **value creation**
- Develop a **decision support framework** permitting to better envision potential impacts of different scenarios in the healthcare system
- Design new telehealth processes with a **Systems Engineering** point of view for **Health Organization Transformation**

A - Multi-scalar Method of Value Creation

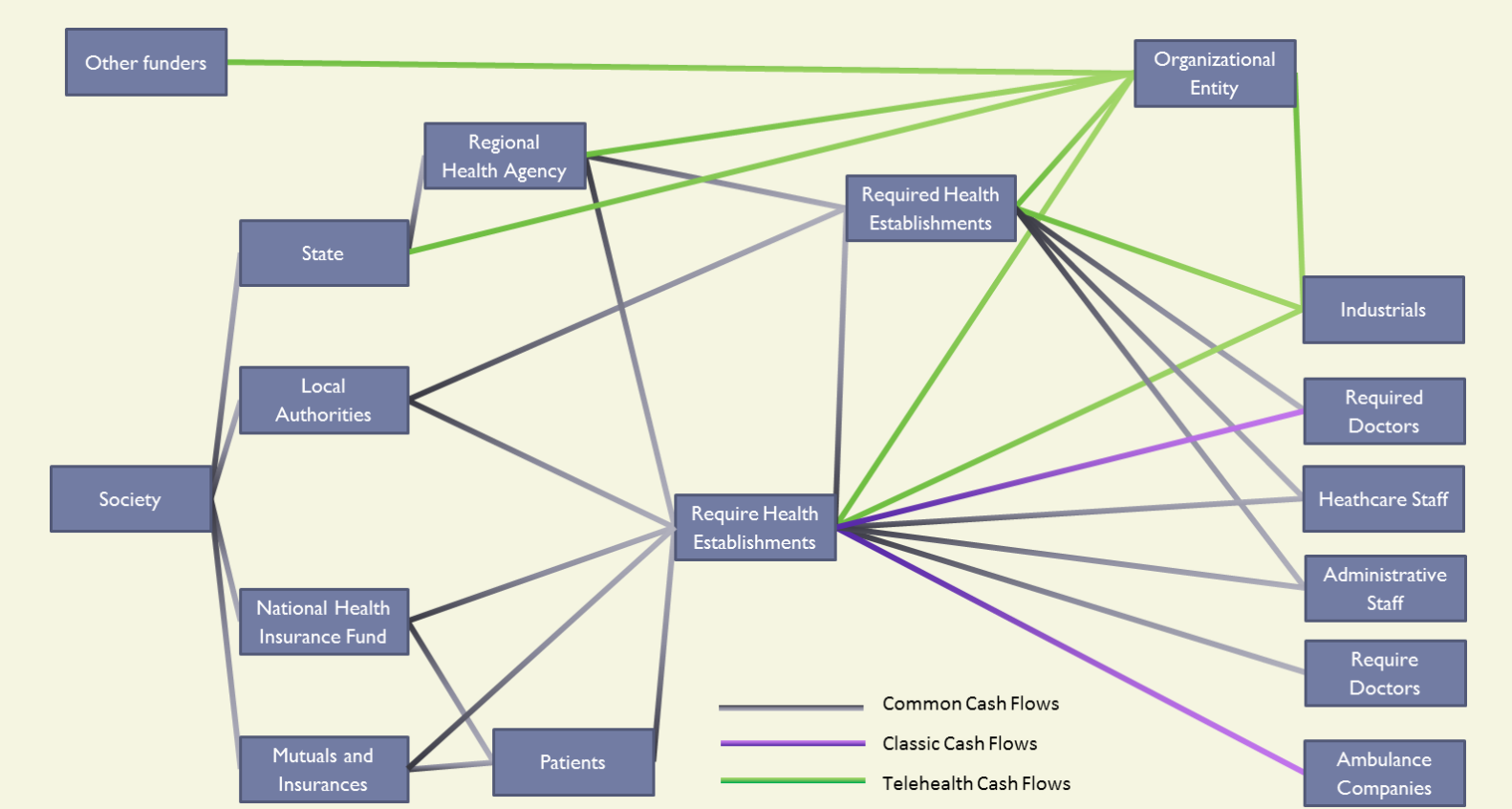
- Industrial Engineering tools can be used to help **design** new organizational processes in the healthcare context (Reid et al. 2005)
- A new **multi-scalar method of value creation** based on the **systemic approach** is developed. This method takes into account **multi-stakeholder** and **multi-criteria** aspects (Jean et al. 2012)
- The ultimate goal is to build a **robust and generalizable model** to simulate and optimize value creation in the healthcare context



C - Design of New Healthcare Organization Processes and Medico-economic Models

- Correlated to this value creation identification, our objective is to go towards the proposition of a new business model to identify multiple potential payers.
- A Cash Flows Matrix and Graph are elaborated in order to calculate the **balance of annual margin** of **each stakeholder** comparing the “before” to the “after” telehealth implementation

Cash Flows Matrix

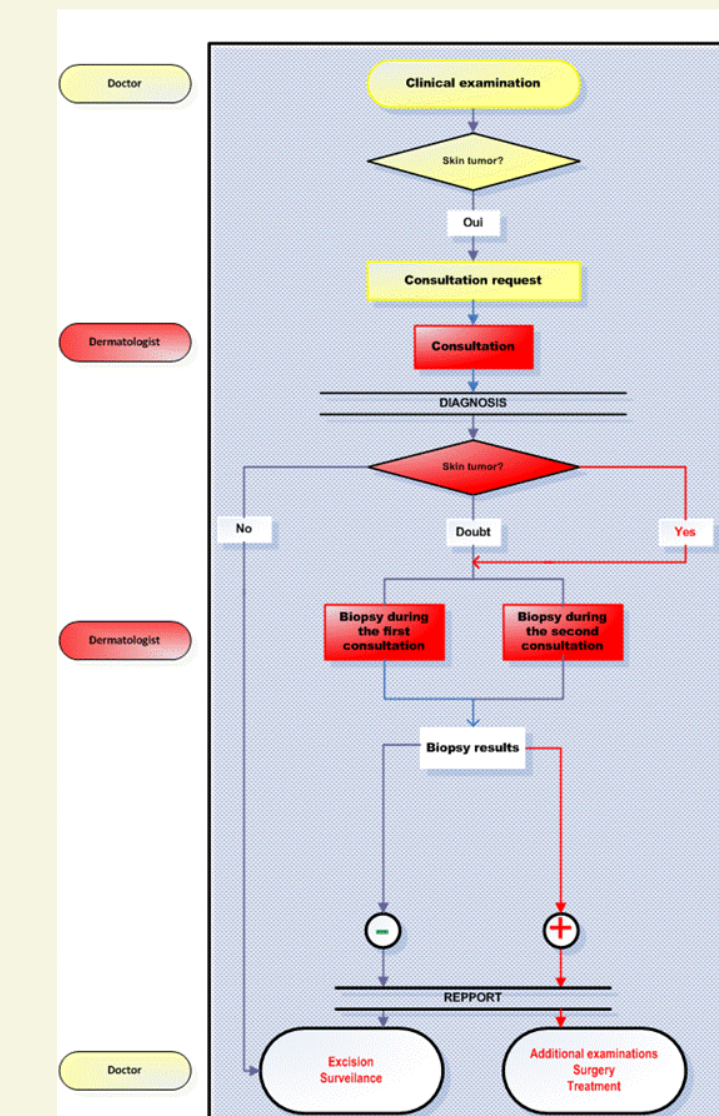


Cash Flows Graph

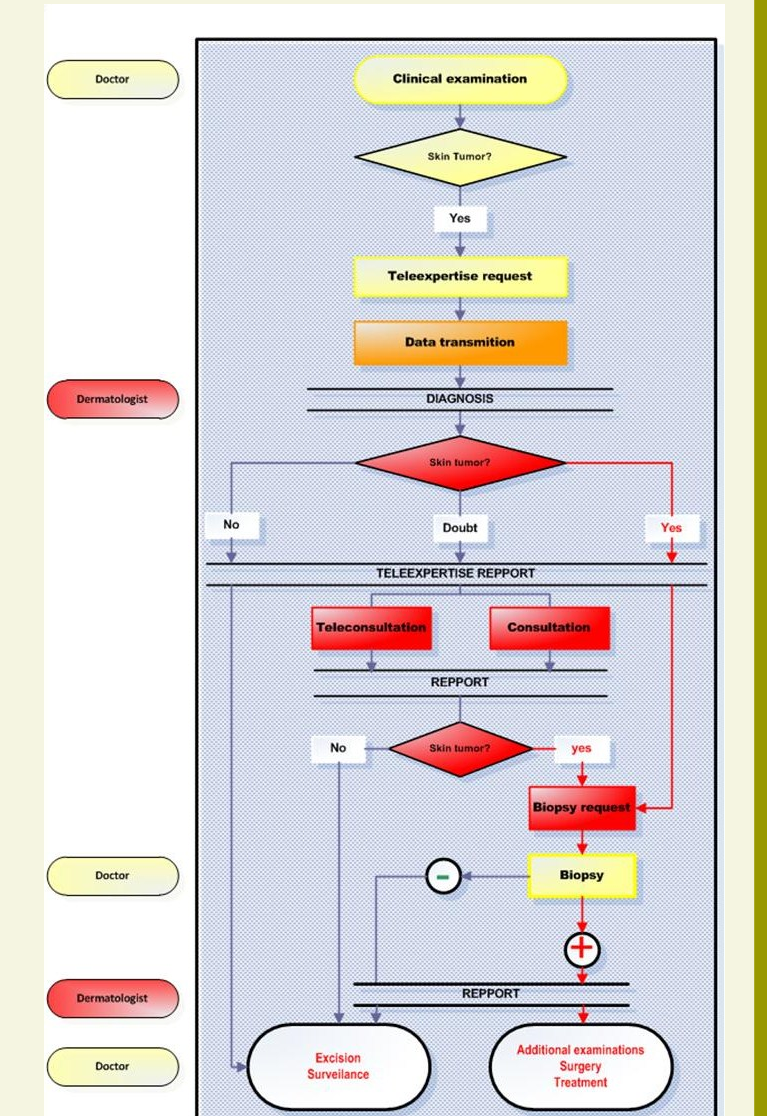
- Finally, processes and activities are operationally defined. The next processes represent the new telehealth process of dermatology consultations

- For example, this new process provides :

- Better accuracy to find the appropriate healthcare professional
- Direct cooperation and transfer of knowledge between the specialist and the referring doctor
- More time for the relationship during the teleconsultation
- Less stress for the patient due to the lack of transport
- Economic benefits with the absence of transport and the optimization of the patient pathway



The “before” process without the telehealth implementation



The “after” process with the telehealth implementation

B - Value Creation of the Telehealth System

- The main idea of telehealth is to provide a **remote access** of healthcare services thus **closing the distance with appropriate healthcare professionals**
- However, the **introduction of telehealth** involves a **major organizational change**

- For identification and definition of health system **values** we have collected very different data

- We **investigate** a first experiment of telehealth named Tégéria at the European George-Pompidou Hospital, **realize** workshops and **assist** to dedicated conferences in order to extract a first set of value creation for each of the stakeholders

- The representation identifies a synthetic part of the **relation between values and stakeholders** of our telehealth system. (The intersection is represented by a green box for a value creation, and a red box for a destruction of value)



Research Process

Values	State	Local Authorities (Town, Department, region)	Regional Health Agency	Regional Health Insurance Fund / Mutual Health Insurance Fund / Regional Health Establishment	Accepted Health Establishment	Regional Doctors	Regional Doctors and Staff	Patients	Inhabitants	Society
Medical										
Access to healthcare services										
Access to specialty care and expertise										
Cooperation between healthcare professionals from institutions and / or city										
Ethical and good medical practices, informed consent of the patient										
Prevention										
Quality of care										
Risk due to transportation										
Shared medical decision										
Social										
Better quality of life / Well being										
Geographical equalization of access to quality care for all										
Knowledge and skills transfer between health professionals										
Opening to the outside world										
Patient therapeutic formation through telehealth										
Quality of the relation between patient and healthcare professionals										
Economical										
Attractiveness of the health territory: improvement of medical demography										
Attractiveness of the healthcare establishment: reputation of the institution										
Coordination between medical and medico-social										
Control of health care costs										
Coordination of health facilities										
Creation of new jobs										
Fluency of the patients' journey										
Efficiency of the health system										
Limitation of the access to health emergency										
Medical activity development										
New markets										
Optimization of medical time										
Optimization of the patient journey time										
Pooling of resources for care, prevention and training										
General satisfaction										
Comfort of proximity care										
Comfort of daily work										
Fame										
Develop new services										
Intellectual practice enhancer										
Satisfaction of participating in the effort of healthcare										

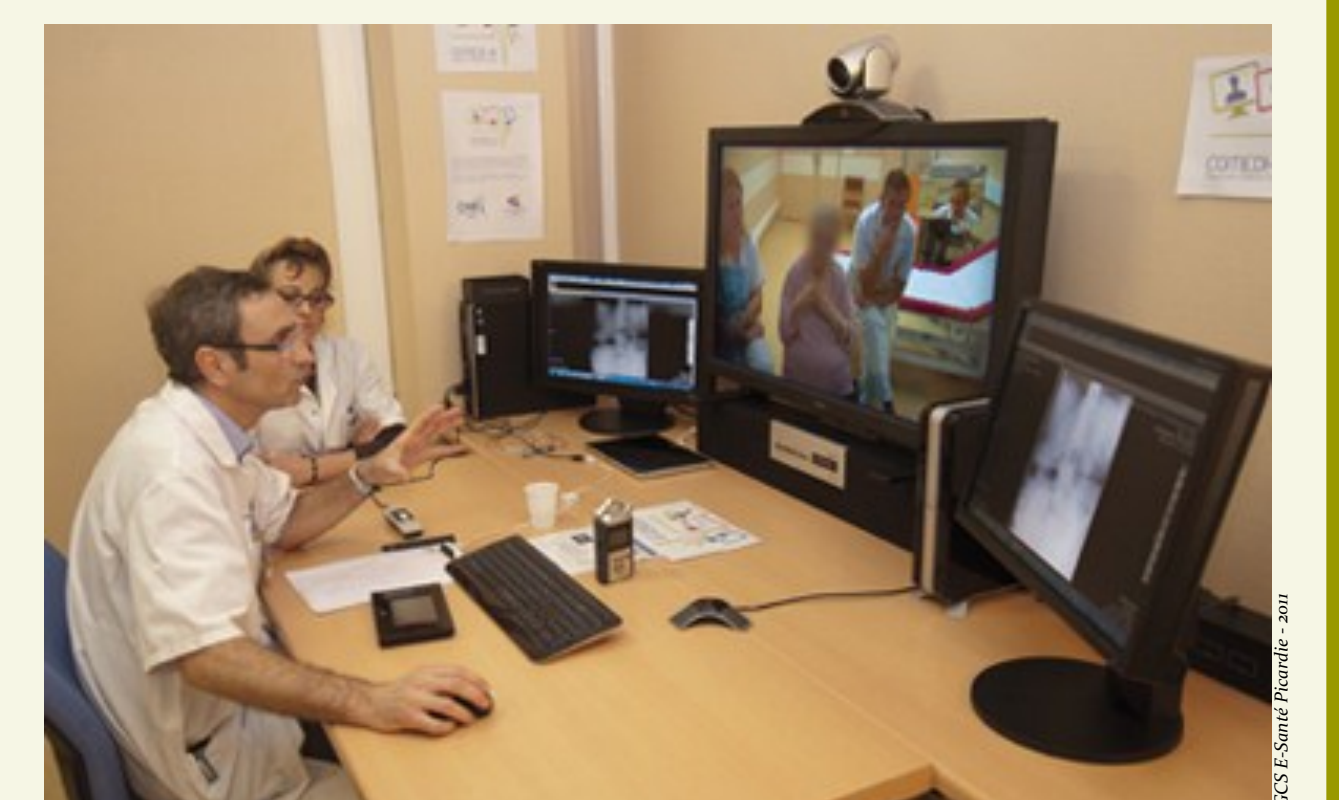
Values Stakeholders Matrix

D - Future Works

- Scenarios-based decision-making technique will be used to determine the new processes that guarantee the value creation

- Future numerical simulations will validate our hypothesis on a long term to provide a medico-economic model viable and sustainable

- These works will allow to determine the advantages of the telemedicine and to organize its large-scale setting-up at the regional and national level



A telehealth platform in the Picardie Region

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