Please use the following format for the title of the file so as to ease the management of the web site.

**PhD Proposal 2016**

<table>
<thead>
<tr>
<th>School: Ecole CentraleSupélec, campus de Chatenay Malabry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory: LGI (Laboratoire Genie Industriel)</td>
</tr>
<tr>
<td>Team: Design Engineering</td>
</tr>
<tr>
<td>Head of the team: Bernard Yannou</td>
</tr>
<tr>
<td>Supervisors: Julie Le Cardinal</td>
</tr>
<tr>
<td>Email: <a href="mailto:julie.le-cardinal@ecp.fr">julie.le-cardinal@ecp.fr</a></td>
</tr>
<tr>
<td>Collaboration with other partner during this PhD:</td>
</tr>
<tr>
<td>Possibilities with APHP, Hôpitaux de Paris</td>
</tr>
<tr>
<td>Possibilities in USA : Penn State University</td>
</tr>
</tbody>
</table>

**Title:** Impacts of new trends such as Big Data in the reorganization of Healthcare systems

**Scientific field:** Industrial Engineering, Healthcare

**Key words:** Big data, Healthcare, Crowdsourcing, innovation, safety, new healthcare organisations
Details for the subject:

Background, Context:
Given the widespread desire to reduce costs in industrial and health organizations, these organizations transform and aim increasingly to integrate transverse services and pooling of resources. Change and transformation are essential especially in health organizations to move towards integrated organizational models.

But such changes in healthcare organization must be done so as to fulfill patients’ needs as well as possible. Big data issues, for instance, should be a help to get big pictures of a given population of patients.

One of the main challenges of this research will be to consider the impact of current unavoidable trends that are big data and connected objects, integrated organizational models and open innovation (and also Lean Startup, Jugaad innovation ...) in the reorganization of health systems in France, Europe and USA.

The laboratory of Industrial Engineering at CentraleSupélec has multiple and international academic and industrial relations, and the PhD student will be able to work in close collaboration with research teams in both Germany and USA.

Research subject, work plan:
This work is a continuation of the work developed for over 10 years in our Industrial Engineering Laboratory, work around the modeling of technical and organizational complex systems, with applications in industrial and health worlds.

Please see the web site: [http://www.lgi.ecp.fr/gims/](http://www.lgi.ecp.fr/gims/)

The main steps of the expected work will be:
1. To realize a national and international benchmark for alternative health organizations, state of the art and analysis of the existing solutions
2. To analyze the major trends on organizations, taking into account aspects such as "virtual teams", big data, Jugaad innovation or Lean Startup, users / patient oriented design
3. To submit a support methodology for transforming health organizations, test it in some given healthcare organizations (such as hospital in Paris), get feedbacks and improve the recommendations

The very last deliverable of this PhD thesis will be a generic methodology to support any healthcare organization in its transformation.

References:


