Moving beyond initial implementation: a multiple case study of lean as an organizational-wide strategy

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Agenda

• Research project background

• Research project question

• Research project overview
  - First step
  - Second step
  - Third step
Lean management has shown to yield significant performance improvement in health care (D’Andreamatteo et al., 2015; Mazzocato et al., 2010; ...)

However, like other improvement methods, its practical implementation and sustainability remain challenging (Radnor et al., 2006; ...)
The use of lean practices in health care

• Holistic system-wide approach (Radnor et al., 2005; Radnor et al., 2012; ...)

• Adaptation-oriented approach (Holden, 2011; Wiltsey Stirman et al., 2012; ...)

• Specificities of health care organizations (Vissers and Beech, 2005; Poksinska, 2010; Villa, 2012; ...)

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What are the organizational conditions for the sustainability of lean implementation in health care?
Research project overview

1° Step

Comprehensive literature review to identify and categorize the organizational factors that support the development of lean initiatives in health care.

2° Step

Case study approach (Eisenhardt, 1989) to empirically test the identified categories.

3° Step

Multiple case study approach (Yin, 2003) to systematically explore (i) the integration of lean into the organizational context and (ii) its influence on the sustainability of the improvement efforts.
Implementing lean in a health care organization requires **coherent and coordinated interventions on different organizational dimensions**.
Theoretical background

• Lean healthcare literature:

  system-wide change program $\rightarrow$ sustainability
  (Radnor et al., 2006; Radnor et al., 2012; ...)

• Implementation science literature:

  mutual adaptation $\rightarrow$ sustainability
  (Scheirer and Dearing, 2011; Chambers et al., 2013; Kemp, 2016; ...)


Explore:

1. the organizational factors relevant for a sustainable lean implementation
2. the process of reciprocal adaptation between lean as a system-wide organizational strategy and its context of application
3. the influence of these mutual adaptation mechanisms on the sustainability of the implemented practices
1. Process-driven organization
   - Technologies and Information Systems
   - Physical lay-out and spaces
   - Engagement of staff and management commitment
   - Availability of resources and organizational set-up
   - Change management and organizational culture
   - Integration within the organizational strategy
Research objectives (3)

2. 3.
Need for a theoretical framework to study:

- how Lean is integrated in its context of application,
- the interrelated components that play a relevant role in the change process

within a systemic design approach
The socio-technical model (STM) (Trist and Bamforth, 1951; Leavitt, 1965; Keating et al., 2011; Davis et al., 2014; Marsilio et al., 2016; ...) is well suitable to capture both the system-wide perspective and the mutual adaptation mechanisms.
Multiple case study approach (*Yin, 2003*)

Cases were expected to produce similar results in terms of the mechanisms explaining sustainability (i.e. literal replication)

Sample of **three Italian hospitals** operating in the Italian NHS

→ Lean interventions have become widely adopted by Italian healthcare organizations to optimize and better use resources

→ **Only three cases** reached a significant level of integration of lean practices within the organizational context (high number of improvement projects, stable interventions in the organizational structure, multi-dimensional performance evaluation system) (*Carbone et al., 2016*)
The three cases met the following key research criteria:

- Employment of a system-wide lean approach
- Lean programs beyond initial implementation
- Lean integrated into daily clinical and organizational work and routinely executed
- Lean structured into the organization
• Grey literature, internal documents (archives data and official organizational strategic/management documents), regional planning guidelines, non-peer reviewed journals, and published academic literature about the Lean programs studied

→ To familiarize with the cases and to provide a description

• Study visits (in conjunction with the interview situations)

→ To familiarize with the organizational context
• 15 semi-structured interviews to CEOs, program leaders, Lean team/office members and healthcare professionals who have an active role in the Lean program (snowball approach); interview guide based on the theoretical categories identified from the literature review and empirically tested (FYP + SYP)

→ To get an in depth understanding of the implementation process and of the interested socio-technical system components
### Data collection (3)

<table>
<thead>
<tr>
<th>INTERVIEWS</th>
<th>HOSPITAL 1</th>
<th>HOSPITAL 2</th>
<th>HOSPITAL 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CEO</td>
<td>Medical CO</td>
<td>Operations manager Director</td>
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<tr>
<td></td>
<td>(December 2012)</td>
<td>(July 2016)</td>
<td>(April 2016)</td>
</tr>
<tr>
<td></td>
<td>Head of ICU and coordinator of the change program (December 2012)</td>
<td>Lean office engineer 1 (July 2015)</td>
<td>Lean team engineer (September 2015)</td>
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<tr>
<td></td>
<td>ICU clinician and clinical tutor (February 2013)</td>
<td>Lean office engineer 2 (July 2015)</td>
<td>Lean team clinician (September 2015)</td>
</tr>
<tr>
<td></td>
<td>Head of the medical department (February 2013)</td>
<td>Lean office clinician (July 2015)</td>
<td>Clinician of the ICU and Lean champion (October 2016)</td>
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<td></td>
<td>Group of lean facilitators (July 2016)</td>
<td>Surgical area nurse and annual lean contest winner (May 2016)</td>
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Qualitative content analysis (*Hsieh and Shannon, 2005*)

- **FC** - Verbatim transcription
- **FC** - Inductive coding by using Nvivo 11 qualitative software (*manifest meaning*)
- **FC/PM** - Inductive categorization by comparing, merging and grouping codes
- **FC/PM** - Relating categories to the three components of the STM (S, T, EE)
- **FC/PM** - Themes identification
1. Different factors play a relevant role in letting the change program be sustainable (i.e. internalized as a working part of the organization)
Most of the relevant factors for the development of lean over time are traced in the **social dimension**

Lean as (i) a cultural approach (*Radnor et al.*, 2012) and (ii) a employee-driven system (*Drotz and Poksinska*, 2014)
2. 3. The implementation of a system-wide lean intervention is fostered by an ongoing process of interrelated change:

- the organizational context and the lean approach originally adopted have both seen evolving some of their traits

- the continuous combination of these changes is relevant to facilitate the internalization of lean as a working part of the organization
**Contribution to practice (!)**

**Key factors** that hospital managers must place equal focus on:

<table>
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<tr>
<th>Decentralization of responsibilities to practically work on lean</th>
<th>Stable guidance and support, at all organizational levels</th>
<th>Introduction of an intermediate level between the top management and professionals (i.e. lean roles)</th>
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<tr>
<td>(S)</td>
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<td>Comprehensive approach to the optimization of hospital production processes</td>
<td>Continuous improvement and learning: training program (S) + external networking (EE)</td>
<td>Launch of internal events to promote lean (i.e. lean contests) (S)</td>
</tr>
</tbody>
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Positive contribution to fill the gap in the literature

The framework offers valuable insights for future comprehensive research on managing the implementation of holistic improvement initiatives in healthcare

i. It recognizes the need to take a system-wide perspective to organizational change

ii. It identifies the relevant patterns to be acted on through concerted adjustment and re-alignment efforts
New research on lean implementation and sustainability issues (e.g. the variability in the outcomes of lean interventions)

**HOW?**

By testing the framework on:

- Hospitals where the improvement efforts have not been maintained over time
- Innovation-oriented hospitals
- Other healthcare settings (e.g. long-term care providers)
Thank you for your attention!

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Main references (1)


Lega F. (2005), *Organizational design and development for healthcare services*, McGraw-Hill


