

## RESEARCH ARTICLE

# Implementing new technologies for complex care: The role of embeddedness factors in team learning

Merieke Stevens<sup>1</sup>  | Jan van Schaik<sup>2</sup>

<sup>1</sup>Department of Technology & Operations Management, Rotterdam School of Management, Erasmus University, Burgemeester Oudlaan 50, 3062 PA Rotterdam, The Netherlands

<sup>2</sup>Department of Surgery, Leiden University Medical Center, Albinusdreef 2, 2333 ZA Leiden, The Netherlands

## Correspondence

Merieke Stevens, Department of Technology & Operations Management, Rotterdam School of Management, Erasmus University, Burgemeester Oudlaan 50, 3062 PA Rotterdam, The Netherlands.  
Email: mstevens@rsm.nl

Handling Editors: Lawrence Fredendall, Anand Nair, Jeffery Smith and Anita Tucker

## Abstract

Bearing the rising health care costs of our aging global population is one of the most urgent challenges society is facing. We study the implementation of new medical technologies as one way to increase the effectiveness of care, particularly in the area of aortic disease—a condition that affects an increasing number of patients globally. Our research focus is the implementation of complex endovascular treatment techniques by a multidisciplinary aortic treatment group, in addition to their traditional open treatment of aortic disease. We find that relational and cognitive embeddedness factors support team learning, which in turn enables the team to achieve its self-set goals of treating more patients; offering more tailor-made care; and providing endovascular treatment in emergency situations. At the end of our data collection period, the first steps toward the team's ultimate goal of offering patient-centered care were also taken.

## KEYWORDS

technology implementation, team learning, health care, embeddedness, medical suppliers, longitudinal study

## 1 | INTRODUCTION

*In modern industry, harmony among people in a group, as in teamwork, is in greater demand than the art of the individual craftsman.*

Taiichi Ohno, founder of the Toyota Production System, (1978)

Implementing new technologies in health care is a difficult and complex task. The Dutch Ministry of Health, Welfare and Sport found that avoidable deaths increased in 2015–2016 compared to 2011–2012 only in academic hospitals (Langelaan et al., 2017). The report suggests that a contributing factor was insufficient cooperation and communication between different specialists in various disciplines, during treatments where the physicians' technical skills were important (Klopowska, Schutijser, Bruijne, & en Wagner, 2016). We examine the

challenge of new technology implementation by focusing on how embeddedness factors impact team learning using an in-depth case study approach of one medical group.

Our study took place at the Leiden University Medical Centre (LUMC), one of the eight university hospitals in the Netherlands. More specifically, we looked at how open reconstruction of complex aortic disease by members of the vascular surgery and thoracic surgery departments is supplemented (and later partly substituted) by endovascular reconstruction of complex aortic disease by the endovascular treatment team (ETT) composed of members of the vascular surgery and the interventional radiology departments. All treatment decisions, however, continue to be taken by the Aorta Group, which brings together members of the vascular surgery, thoracic surgery, and interventional radiology departments.

Cardiovascular disease is one of the leading causes of global mortality and morbidity. According to the World

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2019 The Authors. *Journal of Operations Management* published by Wiley Periodicals, Inc. on behalf of The Association for Supply Chain Management, Inc.