

*Adoption of a shared electronic patient record system*

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A case study of Yorkshire & The Humber Strategic Health  
Authority region

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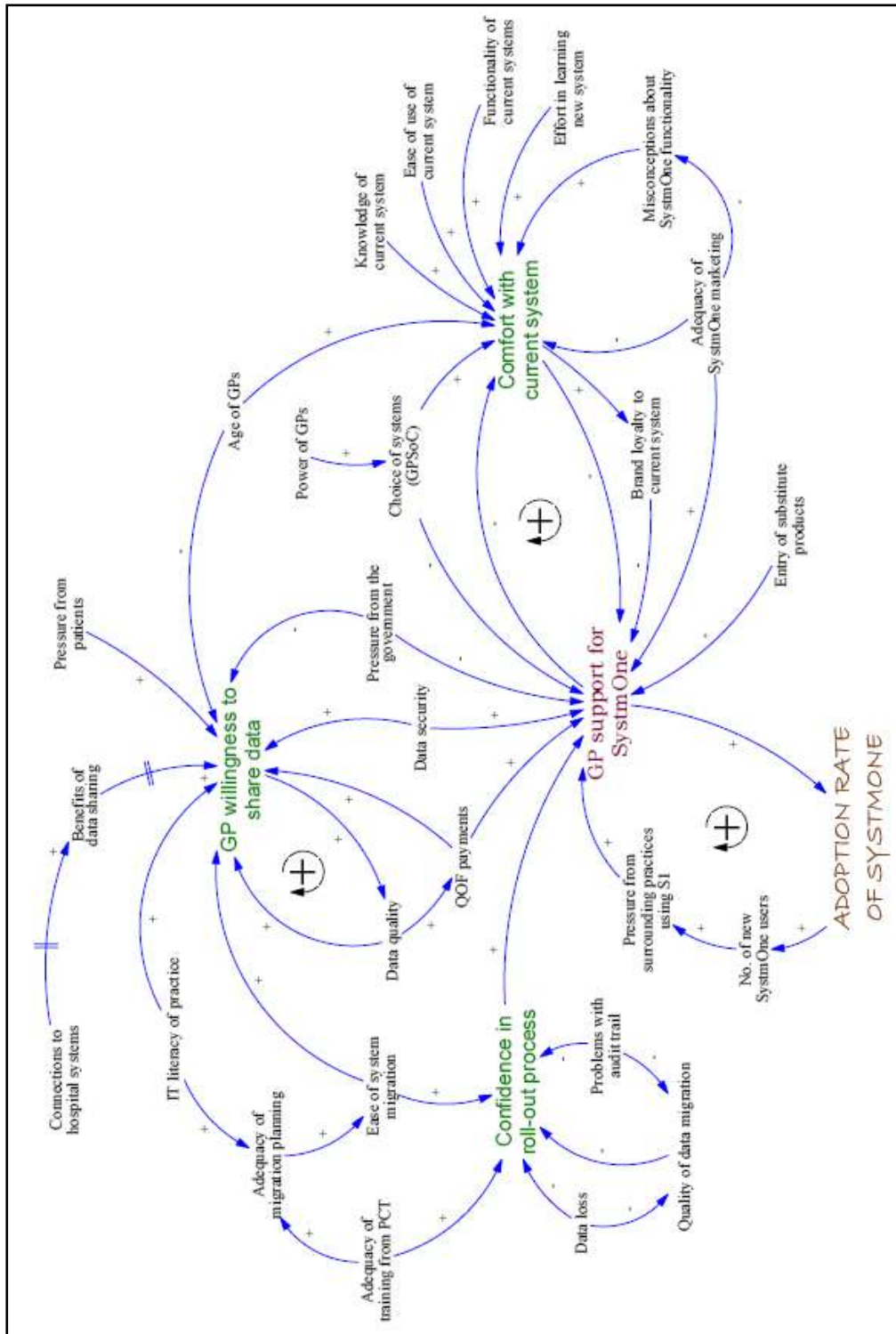
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## Abstract

This cross-sectional study presents a conceptual, causal model of the drivers and barriers to the adoption of a shared electronic patient record system, SystemOne, in the Yorkshire and Humber region in England. The system is being implemented as part of the UK National Health Service's National Programme for Information Technology - the largest, civilian IT project in the world. The adoption process was studied using diffusion of innovation and systems theories, with reference to the literature on the high failure rates of large-scale IT projects.

System dynamics offers the potential to describe complex processes in a non-linear, dynamic way. The conceptual model, developed as a system dynamics causal loop diagram, identified that support for SystemOne by general practitioners (doctors) was the principal driver for its adoption. Such support was, in turn, linked to their comfort with legacy systems, willingness to share data, confidence in the SystemOne rollout process and commercial interests of companies with similar products. Building this conceptual, causal model is the first essential step towards a computed simulation model. The latter will have to be addressed with the help of a larger, longitudinal study in the future.

# Causal loop diagram of the adoption of SystemOne



## 7 Conclusion

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Large scale IT projects are complex undertakings with a high failure rate. In attempting to use such projects to spread IT innovations within a social system, top management need to take into account the interactions between the key variables driving or inhibiting the adoption process. Principal among these variables appears to be user resistance to change. Such resistance is more likely to be broken by addressing the system issues i.e. improving knowledge and skills of the user group, selling the benefits of the new system and demonstrating well-designed processes of implementation. Changing the business processes prior to implementing the technology might result in higher success rates of such programmes.

In order to answer the research questions of this study, DOI and systems theories were applied to understand the diffusion of a shared EPR system, SystemOne, within the Yorkshire and Humber region. The diffusion patterns across 14 PCTs within this region were determined using secondary data obtained from YHSHA. It was found that no definite diffusion pattern existed between the PCTs. In an attempt to identify the key factors influencing the diffusion of SystemOne, semi-structured interviews were conducted with various stakeholders. Drivers and barriers identified from these interviews were subsequently mapped, using SD modelling software, to build a conceptual model of the adoption process.

It was observed that support for the system by GPs was the principal driver to adoption of SystemOne. Willingness to share data, comfort with their existing systems, confidence in the rollout process and the commercial interests of system suppliers were, in turn, related to GP support for SystemOne. These inter-relationships between the causal loops constituted the system structure. The behaviour of the system i.e. adoption rate of SystemOne, would be determined by the feedback loops within the system structure. To the researcher's knowledge, this is the first such study within the NHS NPfIT programme.

Within the time and resource constraints of the MBA programme, the research design was limited to a cross-sectional study. A larger, longitudinal study is recommended to identify the numerical ranges of the key variables. This will allow validation of the hypothetical, conceptual model and identification of the dominant feedback loops driving the adoption of SystemOne. Such information might be of significant use to the NPfIT team within YHSHA to accelerate the diffusion of SystemOne within the region. The resulting increased connectivity to the NHS CRS can mean only one thing - improved patient care.