Introduction
The SmartCare project tested and evaluated the impact of ICT enabled integrated care on different regions and stakeholders. The objective was to identify the changes introduced by implementing ICT supported integrated health and social care in different domains according to the MAST evaluation framework, including safety and clinical outcomes, resource use and cost of care, user / carer experience, and organisational changes. The MAST evaluation framework has been complemented by novel health technology assessment techniques, including predictive modelling in order to support informed decision making. Predictive modelling techniques have been used by public organisations, insurance companies, and the pharmaceutical industry in order to support informed decision-making, mainly concerning the reimbursement of the service or product under evaluation. Predictive modelling has already been applied in the CareWell project to represent the pathway followed by frail patients with multiple diseases to test different possible interventions in order to maximise health benefits, taking into account the scarcity of resources from now to the 2020 horizon. The SmartCare project is collaborating closely with the CareWell and BeyondSilos projects. The three projects strive to create synergy and coherence between the methodologies used in the evaluation framework for the projects. This will allow comparisons and assessment of the transferability of the results from the three projects.

Objectives
The main objectives of the application of predictive modelling techniques in SmartCare are:

- Test the feasibility of the application of these techniques in a European project of integrated care.
- Predict future outcomes based on project results.
- Assess the financial consequences of the SmartCare services for patients with heart failure in FVG and their sustainability.

Methods
A cost-utility and a budget impact analysis have been performed. A 4-states Markov model (Figure 1) was developed in order to predict short and medium-term clinical and economic outcomes (Figure 2) of integrated care services compared with the usual care in the same setting. The analysis has been conducted from the perspective of the Regional Health Authority of FVG with 2016 as the reference year. All estimates are in Euros. Future costs and benefits have been discounted at 3.5%. The basic time horizon of the analysis was five years, in accordance with the regional strategy, but longer and shorter horizons have also been tested. Due to the severity of the disease and the age of the participants, this time horizon represents the lifetime scenario (longer than the average expected survival for most of the patients under evaluation). We have adopted 3-months cycle lengths, to correspond to the usual pathway duration, with half cycle correction. A hypothetical cohort of 5,000 patients has been simulated to receive integrated care, and 5,000 patients to receive usual care, in probabilistic sensitivity analysis. The primary outcome of the model was the incremental cost-utility ratio (incremental cost per quality adjusted year gained, ICUR/QALYs).

A model was developed in Microsoft Excel 2016 in order to determine the budget impact of the introduction of ICT-enabled integrated care for the management of patients with HF in the FVG region from a budget holder perspective (Region of FVG). The model considered: regional population, national and regional prevalence of the disease, number of patients likely to be eligible for receiving integrated care services; cost of development of new services and operational cost; cost of HF management; predicted uptake of new type of care; frequency and cost of hospitalisation; cost of care in nursing homes / residential care; contacts with the nurses and social workers; and, finally, the impact on mortality, hospital admissions and total number of days in hospital.

Results
Although it was assumed that there was no improvement in quality of life from the integrated care services, the significant reduction of hospital admissions had a small positive impact on quality adjusted life years. Moreover, this benefit has been achieved with significant cost savings, about 6,000 € per patient over a time horizon of five years (Figure 3). When a service under evaluation is cheaper and more effective it is called “Dominant” and should be reimbursed. The cost-effectiveness analysis, based on the lack of any benefit in terms of mortality, demonstrated that there was no difference in survival between the two groups, with mean survival 3.17 years, and transformed to cost-minimisation analysis. In accordance with the principles for the evaluation of healthcare programmes, when there is no difference in the effectiveness between the comparators, the total costs have to be measured and the decision-makers should select the cheaper solution, which in this case is integrated care.

Conclusion
The application of predictive modelling in integrated care projects is feasible and could produce a reasonable approximation about how a service will behave without actually testing it in real practice. In the SmartCare project, cost-effectiveness and budget impact analyses show that ICT-enabled integrated care for patients with heart failure in FVG could be a sustainable service, and has the potential to release resources which could be used to cover other needs or priorities. This conclusion cannot be generalized for the whole project, since significant diversity has been seen and the transferability of the model has not been validated yet.

References