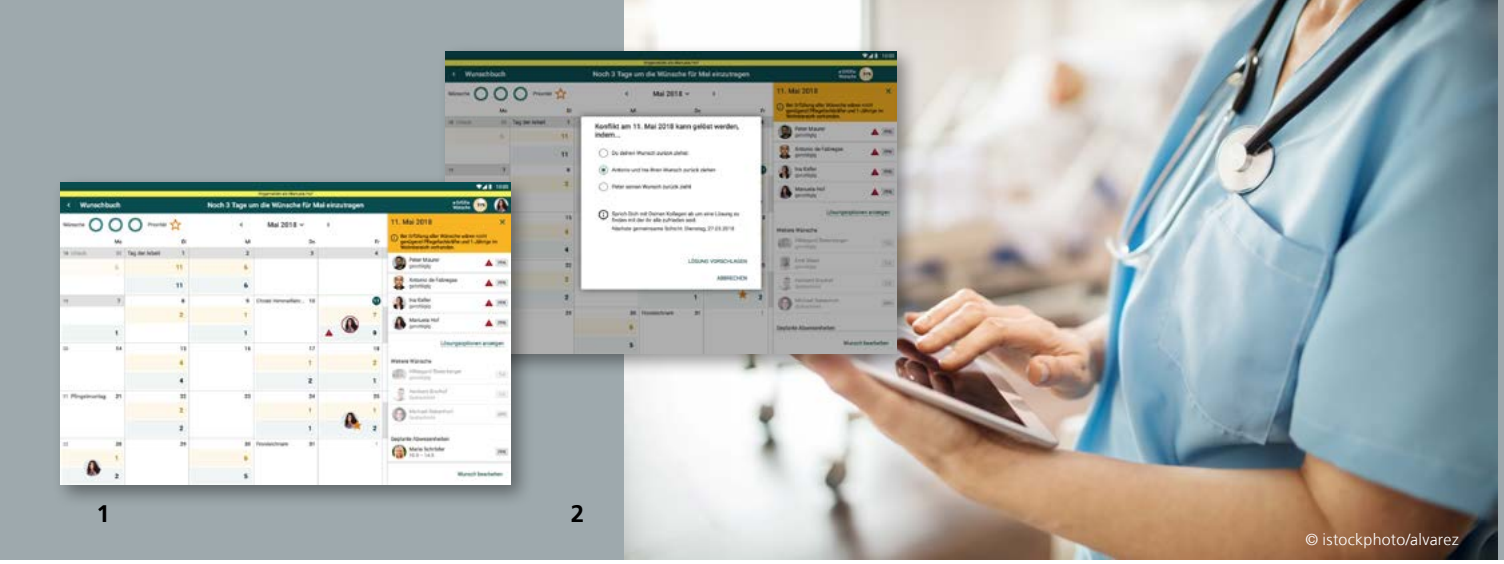

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GAMOR – COLLABORATIVE DUTY SCHEDULING IN THE CARE SECTOR

1 *Digital wish book*

2 *Conflict resolution options*

The care sector suffers from a massive shortage of skilled workers. The nursing profession is perceived as unattractive: physical strain, shift work, comparatively low salary are the decisive factors. Negative effects of shift work can be reduced by increasing the autonomy of the employees. They no longer have the feeling that their private life is at their employer's disposal in addition to their professional life. Instead, they have the chance to create and shape the balance themselves.

The GamOR project addresses this creative scope: with the help of collaborative and digitally supported duty planning, the satisfaction of nursing staff is to be increased. The design of the duty planning process based on ergonomic and experience-oriented aspects ensures integration into everyday work life as well as sustainable motivation.

Minimal conflicts: recognition and resolution

From an employee's point of view, one of the main quality measures of a duty roster is compliance with desired days off. We call a set of such wishes, which can´t be fulfilled at the same time, conflicts. Conflicts that can be resolved by cancelling any involved wish are "minimal conflicts". These must be resolved independently of any wishes added later. In GamOR we develop algorithms for the efficient determination of minimal conflicts as well as game theoretical models for their (partially) automated resolution. In addition, we use constraint-based models to calculate optimized duty roster alternatives. In addition to wishes and staffing requirements, both legal and ergonomic rules are taken into account.

Implementation through a digital services platform

The concepts for collaborative duty scheduling and the algorithms for planning support are implemented prototypically by a service platform. The employees operate the platform via tablets, in perspective also from their own smartphone. Employees see the planning month with all wishes entered (Fig. 1). New wishes can be added, existing wishes can be withdrawn. Conflicts that involve the employee are presented clearly and possible solutions are shown (Fig. 2). Those responsible for planning can directly use a web interface for data maintenance.

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