



# Healthcare Solutions

## Efficient planning



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## Challenges

Syntro advises several hospitals in their staff planning. Combining operating theatre, patients, surgeons and surgical assistants is a difficult task. Especially, knowing that each surgeon and surgical assistant has one or several specialisations which must be taken into consideration. Knowing that hospitals deal with understaffing and staff shortages, the planning is a very important task.

Working with an inefficient schedule results in avoidable costs, since surgeons have long breaks while available for work. This leads clearly to unsatisfied patients. Having unsatisfied clients is devastating for any type of business and hence also for hospitals.

Next to that, the surgeons indicate their frustrations about both the unsatisfied patients as being idle when there is work available. On top of that, they indicated that they preferred a better balance between their work and private life. Having unsatisfied personnel deteriorates their performance on the long term. All in all, improving the planning has several advantages.



## Solutions

Syntro has developed two types of solutions for the staff planning in hospitals. The first method focuses on the balance of work and private life of employees. Within this method, the employees have more influence on their working times and days. The second solution method focuses on the efficiency of the schedules. By this method, the idleness of operating rooms, surgeons and surgical assistants is reduced. More details on these solution methods can be found below. The methods can be used separately and combined

### Surgeons impacting their work shifts

Obviously, not all operations are plannable in advance. A hospital requires personnel both for the planned and unplanned operations. Especially for the latter, most times emergency situations, staff must be available.

During projects in several hospitals, we drew the conclusion that there needs to be a better structure in the planning. Syntro has developed an online tool in which planners frame which shifts have to be worked and employees indicate their preferred shifts. In this tool the planning department and the employees work alternately in three phases. Simply stated, the first phase consists of assigning the demand and preferences. The second phase gives the planning department the opportunity to do small changes if required and to allow the employees to swap shifts. In the final stage the planners can create the final schedule.

This online tool and the structure of it is beneficial on multiple sides. The employees are satisfied with their schedule since they work mainly shifts they proposed themselves. Next to that, they can see what personnel is required at which times. The role of the planning department shifts from assigning personnel to their time slots towards a more controlling approach. They only have to do the last, important, details to create the final schedule. The final schedule needs to be workable. Of course, a workable schedule takes organizational interests, employees interests and patients interests into account.

## Efficient planning

Efficiency is key in every organisation, hence also in healthcare. In organisations in which the added value comes mainly from the staff deployment, the main efficiency gains can be found in the planning and scheduling of employees. Creating efficient schedules is one of the main pillars of Syntro.

An optimal schedule is defined differently for every type of organisation. For example reducing idleness seems to give a higher worker productivity. However, having no idleness might influence other negative effects. A delay cannot be compensated, employees experience more stress and social interaction among colleagues is limited. For every organisation, the balance between idleness and work is different. Of course, there are more aspects to measure the quality of a schedule. We try to incorporate these in finding a final schedule.

Therefore, an optimisation tool to create optimal schedules has to be different for every organisation. At Syntro, optimisation tools are developed which are basic, easy to use and customer oriented. These tools are not meant to replace the planning department, but are used to assist the planners and make their work easier. Therefore, we normally shape the tools in collaboration with some members of the planning department.

Having experience in developing tools to create schedules on a day to day basis, we have great insights in what works and what does not. A tool to create daily schedules can be an overkill when a repeating schedule satisfies. Then, we can still use our knowledge to create a high quality repeating schedule.

## Results & Conclusion

By splitting all surgeons and surgical assistant into several units, while keeping the specialisations in mind, more stability in personal schedules has been arranged. Employees indicate their preferences for the working slots in advance and the planner creates the final schedule. By using working groups per unit, agreements have been constructed on which the schedules needs to be built. By using a tool created by Syntro, the planner optimally uses all of the preferences of the employees and can create an efficient schedule.





## Syntro's Introduction

Syntro is a Dutch consultancy firm which has been established in 2009. Originally, the company focused on three main subjects: Sustainable and efficient scheduling, the organization of a planning department and the terms of employment related to working in irregular shifts.

Due to the steady growth of the company, it became possible to expand our activities to subjects connected to these main subjects. To give some examples, we provide training and coaching to planners and we have developed a simple tool in which employees have more control over their personal schedule on a weekly basis.

In the context of Operations Research, we use mathematical models to create very efficient schedules. Given a specified demand pattern, we are able to create an efficient set of shifts which satisfies that demand. Of course, taking into consideration the corresponding terms of employment and several social aspects. Within the model, it is possible to specify multiple activities (possibly at different places). The mathematical model can be used to calculate a single very efficient schedule when the demand pattern is identical on a day-to-day basis. Furthermore, we are able to provide the model as a tool to create schedules when demand patterns are different on a daily basis.