Importance of the Human Resources Management in a Professional Service Firm

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Abstract. We developed a computer model of a professional service firm using the theory, tools and techniques of business dynamics modeling. We studied the influence of different personal policies and different distributions of employees on seniority levels on the business performance. We found out that that poor personal policy may take up to 15 years to be fixed organically. Such a model can then be used for better understanding of management patterns of companies and managing companies more effectively.

Introduction

Professional service firms are often referred to as consulting companies. This is not very accurate as they are generally companies selling their services. Consulting companies are rather the subset. When we consider taxonomy of professional service firms generated by Von Nordenflycht (Von Nordenflycht, 2010), we will focus on companies in the first and in the second group. To the first group belong classic professional service firms – characterized by a high knowledge intensity, a professionalized workforce, and low capital intensity. They are for instance law or accounting firms. The second group is called neo-professional service firms, where the high knowledge intensity and low capital intensity is also typical. Neo-professional service firms are for example management consulting companies.

In the area of professional service firms the special emphasis on the creation and maintenance of a group of developing and experienced professional staff at various levels of seniority is put. This emphasis is evident, as the greatest asset of each professional service firm are actually its employees.

These companies also create a motivating and challenging environment to keep employees busy and support them in developing their skills. There is often the system “up or out” implemented in these firms. It means that each employee performance is evaluated on the regular basis, and the best are promoted and the under-performing ones “go out.” This system provides a steady flow of new employees who must fill gaps left by under-performing ones. This ensures a high quality of work and thus building a reputation, which is a guarantee for future growth.

The main principle of operation of a professional service company is shown in the diagram 1.

The management of a professional service firm is very difficult and complex task. Managers are using some tools to simplify this task. This includes models of some more complex parts of the company. For example model for human resources management, moder for project management and so on. Problem of this approach is, that we can not correctly model only one isolated part of the company as it is one big complex system, where a change in one part could affect another part. That is the reason, why we decided to build one complex model including all areas of the company. We are not aware of any similar project.

Model

The whole model was built on basis of so called “best practices” in professional service firms management and on the own experience with work and company culture in two companies from the Big 4\(^1\). Inspiration were also publications Strategic Management Dynamics [Warren, 1997], Managing the Professional Service Firm [Maister, 2008], Essential Tools For Management Consulting [Bartonshaw-Gunn, 2010] and management game The Professional Services Microworld with manual [Warren and Spencer, 1999].

We have used the Vensim [Ventana Systems, Inc., 2012] modeling software for the implementation of the whole model. The whole model is deterministic and does not contain any random generator to model for example stochasticity of demand or leaving of employees.

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\(^{1}\)The Big Four are the four largest international professional services networks in accountancy and professional services, offering audit, assurance, tax, consulting, advisory, actuarial, corporate finance and legal services. See web pages http://en.wikipedia.org/wiki/Big_Four_(audit_firms) for more details.
Figure 1. Diagram of operation of a professional service firm.

![Diagram of operation of a professional service firm.]

Figure 2. Schema of model components connections.

![Schema of model components connections.]

The whole model is built from several components representing different fields of a firm management. For clarification of the whole model structure refer to Figure 2. The arrows are showing from influencing components to the effected ones.

Component *Human resources* simulates, as some could expect, human resources management. The process of hiring new employees is done automatically by the model using prediction of the firm needs. The needs are computed by the component *Projects*. This component also takes care of the projects life cycle. It means from the first proposal till the successful finish or failure. This component is closely connected to the component *Clients* holding information of an actual number of company’s customers. Another component is a component simulating company reputation with the same name. It influences firm attractiveness for both its clients and employees. The component *Reputation* depends on the component *Work quality* simulating quality of the work and employees utilization. This component is also connected to components *Human resources*, *Projects* and to the component *Knowledge base* simulating current abstract level of company’s “know-how.” The bearers of the knowledge are the employees and their knowledge is gained through the work on the projects. Another component is a small component called *Services range* and simulates some kind of variety of projects, company could solve. The wider the range is the more offers the company obtains. It is related to components *Work quality* and *Projects*. The last component is the component called *Money* simulating company’s cash-flow. It does not influence any components. This component serves only as a point for company financial performance monitoring and evaluating.

The whole model is based on 163 equations of which 34 are differential and 63 parameters.

Now we will briefly describe the most important component for this article, the component *Human resources*.

**Human resources component**

The model operates with the three-level employee hierarchy. On the lowest level there are consultants, the next are managers and on the top level are partners. For the sake of simplicity we are not considering the supporting staff as secretaries and other employees not directly involved in the projects acquiring, realization and sale. They are affecting company financial performance by some overheads.
Also all new hires are consultants. We cannot hire employees to the higher levels. As we want to test optimal human resources management, it is not necessary. We also do not deal with dismissals from over-staffing. The employees in the model are exiting in the natural way by retirement or changing their employer.

We will not describe the other components of the model in detail as they are not relevant to this article. For the detailed description of the whole model refer to my Master thesis [Hubik, 2012].

Results

In this section we will describe the results of the simulations with different setups representing various scenarios and situations, the company can face.

We are going to identify the most important parts of the human resources management. We also would like to identify a set of control points which we can use to manage the human resources. We are also going to analyze inertia of the company. It means how long does it take for the error in management to show up in some statistics and also how long does it take to recover from this error.

After starting the simulation we have to wait some time before the model stabilizes. The model contains many various delay functions that will start their internal counters at one time and so the results are not realistic at the beginning of the simulation. For example normally we promote consultants after a specific time spent on this position and as we hire consultants continuously in time, we also promote continuously in time. But at the start of the simulation, all employees are in the firm for the same long time, so they are all promoted approximately at one time. This causes high deflections in the first years of the simulation.

Default settings of the model

The parameters of the model are set to nearly optimal values in the default settings simulating a virtual mid-sized company. The company has an optimal distribution of employees on seniority levels and optimal number of them corresponding to the number of projects and clients. So the model does not need a long time to stabilize. We will use this setting as a starting point for our experiments. We will wait until the model stabilizes and then change some parameter to observe, what will happen on the resulting graphs.

Now we will look at the graphs related to the human resources representing simulation results for these stable settings. We will use the same graphs to compare various scenarios with each other. In the graph 3 we can see the numbers of employees on the different seniority levels. The most significant group is consultants (63–75), managers are in the middle (38) and the smallest group is group of partners (13), the top management of the company. This forms us a typical pyramidal distribution of employees, where there is the most of the cheapest ones, which also do the most of the work and only a little from the top management. In this graph we can also see the time needed for the model stabilization. In this case it is about 1000 weeks. Such a long time is needed because of the fact, that the human resources component contains quite long delays, so the model needs long time to desynchronize them. The time for stabilization of the model is directly proportional to the delays the model contains.

The graph 4 shows the total load of the employees, the utilization of the working hours. The aim of the human resources management is to have the load balanced between seniority levels. So that for example lack of managers does not prevent consultants from work. It can be seen that this objective is met here.

The graph similar to the load is the utilization (5). It shows the proportion of the chargeable time (time paid by the clients) to the total working hours. The highest utilization have consultants (around 83%) because their job is mainly the work on the projects. Managers and partners, who have greater responsibility for sales, have their utilization lower. Apart from working on projects they also take care of the maintenance of services range, increasing of the clients base and so on. Utilization of managers therefore moves around 40%, utilization of partners is only 24%.

The next graph, graph 6, shows the number of currently running projects, the working capacity and current backlog. We can see that the company is working on 15 projects at one time in average. We also see that the required backlog of 9 weeks means just about 8 to 9 projects.

Graphs 7 and 8 show weekly and annual cash-flow. From the graphs it can be seen that the company earns consistently around 49 million CZK per year with income around 134 million CZK per year and expenses around 85 million CZK per year. The overall earned money then shows the graph 9.
Simulations

One of the fundamental aspects of a prosperous company is the correct distribution of the staff on various seniority levels. As we have described in the section Human resources component, the model is programmed so that in case of lack of staff initiates the recruitment process. The model recruits consultants so in case of lack of managers we have to wait the required time for promotion of a consultant to a manager and similarly with the partners. In practice, of course, we can draw a manager for example from our competitor, but it is not always so easy and we want to determine the exact values, how much time between promotions should we have and how many employees should we promote to have a balanced human resources policy. There can also be the opposite problem, namely surplus of employees on higher seniority levels. This situation did not result in an inability of processing projects, but has an impact on company’s costs. Employees on the highest levels have also the highest salaries and when their workload is low, we pay them at a loss. The objective of this area of the company is that every employee is the
busiest possible and has the highest possible utilization. So his time is paid mostly by the client through the projects.

**Figure 6.** Graph of number of projects, capacity and backlog – stable settings.

**Figure 7.** Graph of weekly cash-flow – stable settings.

**Figure 8.** Graph of yearly cash-flow – stable settings.

**Number of employees.** Now we are going to prove how fatal consequences the poorly balanced structure of employees on the company profit has. We will perform this test by step changing the number of employees from the stabilized state in 1000 weeks time. Then we will see how it will change the cash-flow of the company and how long time the model takes to return to the optimal values. In the stabilized state, the numbers of employees in this time varies between 63 and 77 consultants, around 32 managers and around 14 partners. We changed these numbers to approximately 63 to 77 consultants, 62 managers and 54 partners. We did not decrease number of consultants, because the reduction would have an impact on the number of projects that we are able to handle at one moment and it would have an additional impact on the cash-flow. We want to see how much the unused employees cost and how long time it will take until this imbalance disappears by natural leavings. We do not want to force our
Figure 9. Graph of money earned – stable settings.

Figure 10. Graph of employees’ numbers – bad employees counts.

Figure 11. Graph of employees’ utilization – bad employees counts.

employees leave.

Graph showing the change of employees counts can be seen in Figure 10. In Figure 11 we can see drops of utilization of employees and the effect of this imbalance on the weekly cash-flow chart shows the Figure 12. In this graph we can see how long it would naturally take to correct this imbalance by immediate correction of the recruitment and promotion policies. As we can see from the stable settings, the policy is set correctly, we only give the model imbalanced numbers of employees at the time 1000 weeks and do not change the policy. The company will be in loss for approximately 600 weeks after emergence of the imbalances, which corresponds to about eleven years. The time until the system reaches the stability again corresponds to the turnover of the employees and this in turn corresponds to the time after which the employees are promoted.

**Personal policy.** As we saw in the previous example, the correct distribution of employees is one of the key aspects of a professional service company management. The correct distribution is determined
by the correct personal policies which we will test in this section.

In the area of personal policy we set two important parameters for each seniority level. The first is, after how long time the employees will be promoted. As we know, this parameter also influences leavings of employees who will not be promoted. Another parameter is how large part of the employees of the specific seniority level will be promoted. With these parameters we can effectively control how many employees will be at different levels.

Now we will present two major errors in settings of personal policies. First is, that we promote too soon from a specific seniority level or too few employees to this level, and thus we have a shortage of staff on that level. That will slow down the projects start-ups and reduce utilization of the other employees’ levels. We reduced the number of promoted consultants by 8% from 36% to 28% and lower by approximately one year the time after which the managers will be promoted to partners from 320 weeks to 270 weeks. These changes were made at the time 1000 weeks, after stabilization of the model. We are changing two parameters as they have the same impact and we would like to make the graphs more exemplary.

In the graph 13 huge periodically repeated swings can be observed. These are caused by the lack of managers. The cause of these fluctuations, however, is the lack of partners, because due to the lack of managers we are not able to cover the leavings of the partners. If we do not want to hire employees to the higher levels of seniority for example from our competitors, we will have to hire at regular intervals such a huge numbers of consultants to supplement the missing part of the managers and then from these managers again compensate the missing partners. The whole swing is so great, because we have to realize that the likelihood of becoming a partner from a consultant is in this model settings \(0.31 \times 0.18 = 0.0504\). So for 4 missing partners would need to hire about 80 consultants. Periodicity of the phenomenon is caused by the fact, that we hire new employees when the actual backlog exceeds the desired one by more than 5% and then we are again waiting for the next crossing. The problem is that we have to pick up quite many consultants in order to cover the lack of partners at one time. So after the period required for promotion we will promote all these consultants to managers and then to partners. But there is the problem that they will also leave our firm around the same time. So at one point we will again have to deal with a greater shortage of managers and partners, and thus we will have to pick up more consultants again. If we promoted to all levels at the same time, the number of consultants would be high all the time, so that they could supply the lack of employees on higher posts. But given the fact that the partners remain in the company for much longer time than the time needed for promotion of a consultant, the number of consultants has enough time to swing back to the original level.

This situation obviously has a negative impact on the utilization and hence the cash-flow. Utilization graph can be found in Figure 14, impact on the cash-flow can be seen in Figure 15 for the weekly cash-flow, or even more significant is the decrease in Figure 16 showing the annual cash-flow. Here you can see that in times when we need to recruit consultants is their utilization the smallest. It is because there is no other use for them than waiting for promotion. In these moments the cash-flow is around zero, sometimes even in negative numbers. Hence, the company is in the red. All this is caused by the small displacement of parameters from the optimal values.

The second mistake is that we have employees on some levels for too long time or we promote to this level too many employees and they tend to accumulate at this level. Thus they have low utilization and the company will pay them wastefully. We have increased by 10%, from 36% to 46%, the number of

Figure 12. Graph of weekly cash-flow – bad employees counts.
consultants promoted and by 100 weeks increased the time after which we promote managers to partners from 320 weeks to 420 weeks. These changes were made again in 1000 weeks time, after stabilization of the model.

The Figure 17 shows us how the change of policy in 1000 weeks time raises the number of managers and then begins to rise the number of partners after some time. This is due to the fact that we promote the certain percentage of managers to partners and so when their numbers grow, the number of partners grows as well. In the graph 18 we can see how the number of partners and managers slowly increases. Looking at the Figure 19, we can see declining managers’ and partners’ utilization and overall impact on the cash-flow chart shows the graph 20. We can see that before the change, the company was still profitable. Then the profit slightly decreases and sometimes we get into the loss. A little better is this effect visible in the annual cash-flow graph 21, which does not have such fluctuations.

We must realize, that here we have changed the parameters from the optimum setting only slightly.
In the real world could the personal policy be in a much worse condition and mismanagement of this field is often one of the causes of the business loss.

**Conclusion**

Issues of the professional service companies management are very extensive. It contains many different areas that need to be monitored, evaluated and controlled. We have to take care of the client base to secure a sufficient inflow of new projects. As we have already mentioned, the employees and their knowledge is essential for every professional service firm. This implicates another key area – human resources. Furthermore, we have to deal with the development of services, project management, company reputation monitoring, marketing and so on. We can realize that we have to deal with a very complex system, where it is not so easy to estimate the effect of a change in one part of the system to the rest.
This is not only about the effect, but also to what extent and when the effect occurs. These questions make predictions even more complicated and, in some cases, with absence of a sophisticated model almost impossible.

We managed to create a model of a professional service firm with which we are able to simulate various scenarios and situations which a company may encounter. We have also answered some key questions in the field of corporate governance, distribution of employees, promotion times and percentages. Furthermore, the system was able to identify the key feedback loops and their key parameters you can use to effectively manage the entire company.

All results have only demonstrative character as they are not based on any real company. For the real-life model of a specific company the parameters and internal dependencies need to be further developed to meet the size and internal policies of the company. In the most cases changing the values of the parameters would be sufficient.
References
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