Abstract- This paper analyzes main activities and issues regarding implementation and successful management of IT service desk. Paper not only defines how to determine whether company requires implementation of IT service desk but also describes auditing possibilities of operation of service desk if one already exists. Besides that paper outlines main phases of service desk implementation project as well as recommendations for prosperous realization of those phases. Also information about operation trends of service desks in Latvia and its' comparison with analogous research from Great Britain can be found below.

Keywords - ITIL, service desk, help desk, self-service systems

I. INTRODUCTION

IT service desk or end-user single point of contact for defined services in one or another form today can be found almost in any company which makes use of IT service support. It should be mentioned that not always IT service desks make use of certain standard or framework though employees whose duties include IT service support can be found almost in any company (if outsourcing is not used of course). Small companies pretty often can do without special IT service desk however paper authors considers having own service desk mandatory in bigger companies.

II. NECESSITY OF IT SERVICE DESK

Taking into account papers authors’ experience in working in service desk and participation in its’ implementation project paper below will summarize main mistakes and possible solutions as well as give tips and advices that hopefully will be useful. Next some questions [1] will be listed answering which will help to determine if implementation of service desk is needed in company.

- Are company employees satisfied with current situation concerning IT service support quality?
- Are end-users aware of procedure to follow in case of problems and do it correctly?
- Is process of solving received incident controlled?
- Is information of human resources effectiveness utilization available?
- Will company face problems in case of growth of employee number?
- Are all provided services identified and responsibilities defined?
- Are standard solutions defined for everyday common incidents?
- Is there a possibility for the clients to find out status of their reported incidents?
- Is company aware of IT service support costs?

If vast majority of answers is negative implementation of service desk in company will definitely improve situation and control on provided IT services. Paper authors recommends using of ITIL (Information Technology Infrastructure Library) framework for implementation of IT service desk since it’s widely used across the world and is based on industries best practices [2].

One of the above mentioned best practices is determination of support process maturity before starting an IT service desk implementation project. Exactly these processes are controlled by service desk usually they are – incident and problem management. Also change and configuration management as well as other processes can be controlled by IT service desk depending on whether company had implemented those processes and also on size of service desk.

III. EVALUATION OF PROCESSES MATURITY LEVEL

These procedure as an example of best practice ITIL has adopted from COBIT (The Control Objectives for Information and related Technology) IT service management framework. Nowadays large amount of frameworks for evaluation of maturity level exists and one of the most popular is CMMI (The Capability Maturity Model Integration) which therefore is advised for using by authors [3].

Maturity level evaluation is done using special questioners for each service. Only employees with good knowledge of given problem domain are questioned. Usually evaluation questionnaire includes six categories:

- Strategy and vision of organization;
- Direction and evolution of organization;
- Procedures;
- Human resources;
- Culture;
- Technologies.

For example in order to evaluate maturity level of incident management process one should have answered for the following questions:

- Is there full understanding about incident management process in organization?
- Are incidents being escalated if necessary?
- Are all incidents being registered identically?

All questionnaires’ answers should be rated from 1 to 5 where 5 is the best possible assessment [4]. After summarization of all received answers matrix of process maturity levels that reflects current situation in IT service field is being constructed. Example of such a matrix can be found in Fig.1.

Short description of each maturity level is given below for better understanding it should be noted that higher level includes also lower level requirements.
1st level – Initial; shows that processes in company are spontaneous and chaotic;
2nd level – Managed; main processes are defined and are used for some activities and projects;
3rd level – Defined; processes are defined and are used across company. This level defines also testing and risk management requirements;
4th level – Quantitatively Managed; level identifies that implemented processes are being regularly qualitatively monitored across the company.
5th level – Optimizing; company compliant with this level has reached highest maturity level due to continuous improvement process that at this level is already introduced in each process itself [5].

Fig. 1 Example of maturity levels matrix

After company maturity level is evaluated conclusions on whether IT service desks’ productivity is consistent with business objectives and whether such service desk is needed in principle can be done.

IV. MAIN PHASES OF IMPLEMENTATION OF IT SERVICE DESK

Implementation of IT service desk is not very different from other software or procedure implementation projects and includes following main phases:
- Requirement definition;
- Selection of the software;
- Preparation of requirements for software configuration;
- Implementation and testing of the software;
- User trainings;
- Realization of pilot-project;
- Continuous improvement of service desk functions.

In order to underline main problems you might face in above mentioned phases let’s describe them in more details [6], [7], [8].

A. Requirement definition

During this phase all vital information is being gathered and activity plan is being drafted. First phase might be considered as one of the most important since all following implementation stages and activities are dependent on correctly defined requirements and understanding about service desk being created. Not only pure technical needs such as a framework, which should be used for service desk, information needed for incident registration etc. but also organizational requirements such as working hours, amount of operators etc.

If ITIL framework is used than at this stage also requirements for processes supported by service desk should be defined for example incident or problem management. Besides that, activities to endorse end-users to try to solve simple incidents (forgotten password etc.) themselves using special tools or documentation should be defined.

It’s extremely important to understand if all required information is available and its’ sources are known and trustable.

B. Selection of the software

It’s definitely might be possible that this phase is one of the trickiest in Service desk implementation projects because of vast variety of available service management systems. Some systems can be found free of charge either for considerable funds. All systems have different configuration options which should be strictly examined since it’s critical if a system can handle only incident management process or can be configured in such a way to be able to manage all ITIL processes.

In authors opinion service desk support systems’ compliance with company requirements is the most important feature. In case system modification is needed extra costs should be taken into accounts which often are forgotten.

Software ease of use from the end-user point of view shouldn’t be forgotten also. Data entry process should be as simple and fast as possible. This is really essential if implementing service desk in company that hadn’t had such practice before since complex and time-consuming incident registration procedure at least at the beginning for sure will create negative impression for service desk operators and they might try to find a work-a-round and continue to use old procedures. Also if company decided to give WEB based access to end-users to status of reported incidents, WEB interface of such solution should be the simpler the better so that end-users will not be afraid to use this software option which also might ease service desk operators’ work.

Besides above mentioned authors wants to note that attention should be paid for optional functions such as automation of notifications etc.

C. Preparation of requirements for software configuration

After software had been selected specific information concerning its installation and initial configuration shall be found out. Usually this is done by software vendor or its dealer using special questionnaires but in case of free software this activity is performed by responsible company employee.

At this stage all services supported by IT service desk and all incidents reporting groups should be already defined. Besides that SLA(Service Level Agreement) and OLA (operational level agreement) times should be known since they also should be introduced in service desk support software.

Since at this stage understanding about operation of service desk should improve in comparison to planning phase at this stage some changes can be introduced.
D. Implementation and testing of the software

After service desk support system is installed it’s filled in with data for example end-users, responsible experts, support units, SLA times, configuration units, operator instructions etc. After data is introduced some GUI configuration activities can be performed (issues mostly concerning information representation not software functionality). After all installation and configuration activities are finished system operational testing can be performed. The best way is to define special group of employees whose real incidents will be registered in service desk support system so allowing for operational testing to use real data an gathering additional knowledge that can be used in case system changes are needed.

E. User trainings

This stage includes trainings for service desk operators and for other involved parties. Of course main priority is given to service desk operator trainings since it’s them who will use the software in everyday work and it’s them who should perfectly know all implemented service support procedures such as incident and problem management, also service desk operators should fully be aware of all support software functions such as creation and modification of incidents its escalation and selection, management of end-user data etc. Almost the same importance should be given to user trainings and information companies. This aspect also includes service desk popularization campaign so that users will stay informed about ways incidents can be reported and which communication channels can be used.

For sure attention should be given for training of second level support units since in near future they will have to closely cooperate with service desk operators.

F. Realization of pilot-project

After all involved parties are trained and service desk support software is properly configured and tested pilot-project can be started which purpose is to make final assessment of company employees and the system itself. If at this stage no serious issues are discovered service desk can be considered fully operational.

G. Continuous improvement of service desk functions

Also after successful implementation of service desk function its obligatory to continue to improve its functions. First of all the procedure to ensure that data in the system is always up to date must be put in place. Secondly making use of various metrics service support functions should be improved and perfected. Continuous processes and services improvement is also part of ITIL best practices and in 3rd version of ITIL framework is defined as separate set of processes.

V. HUMAN FACTORS

Unfortunately exactly defined procedures and state of art service desk support software is not enough for service desk to function perfectly. It can be explained by human factor – there always will be employees not pleased with service desks’ positive features. Prevalent these are employees considering that old incident management system is way better that newly implemented one. Most frequently there is no real argument for such thinking and the only thing is that “old” system is very common and they got used to it but after implementing of service desk all process became more complex and sometimes they even have to perform additional activities.

Second group is users who have to change their habits because of introduction of service desk. That mostly refers to company internal users that got used to informing orally company technical personnel of “small” issues. Moreover usually this is done in informal manner for example during lunch time etc.

Both of above mentioned cases should be addressed during training phase. All company employees should be aware why the decision on implementation of service desk was taken, how their work will be effected, what kind of benefits are expected after introduction of service desk. Also users should be informed on possible changes in their everyday work however main and also complex part is creation of positive interconnection between service desk and users.

Such a goal can only be reached if users trust in service desk and this in its turn can only be achieved by very fast, effective, error free incident management and information of users on incident solving process. Exactly information of user is the most important part because in this case user knows that he is not forgotten and his incident is important not only to him.

All of above mentioned activities are performed with only one aim make user believe that the fastest way to solve incident is to get in touch with service desk.

VI. SELF-SERVICE SYSTEMS

Other important issue that might help improve service desk operation is introduction of so called self-service system for user support. Such systems allow users to find answer for their question or solve incident even not contacting service desk. Implementation of such a system can noticeably decrease service desk operators’ workload and therefore save up resources.

Commonly such system consists of knowledge base that contains sorted user frequently asked questions (FAQ), possible incident solution, instructions, downloadable files etc. Also possibility to make a search on their own criteria is foreseen [9].

More complex are self-service portals that in best case allow users not only to search for needed information but also using special interface report an incident keep track of its status and surf his own reported incidents.

Pretty often as a self-service system service desk managed forums are used that allows not only service desk operators to answer user questions but other users can also do it. The main forum benefit is in its simplicity as from user as also from management point. Moreover forum can be introduced as an extra to knowledge base or self-service portal.
All of the above mentioned solutions usually have authorization system that helps to identify users providing them only with support they needed and according to agreed SLA level. For sure attention should be given to ease of information introduction and update in such self-service system otherwise systems’ effectiveness can decrease only because it will be considered too complicated.

The most interesting tendency nowadays is use of social networks to make communication between service desk and users. Moreover communication is not the only way how such popular social networks as Twitter, Facebook or even Youtube can be used. Education as well as searches for solutions also can be done. Taking into account that such social networks are opened for everyone use users can easily find needed solution given to another user [10].

Of course such approach can’t be used for service desks managing standalone companies, taking into account that usually use of social networks at work place is forbidden furthermore not all companies will be satisfied that at social network published information can be accessed by any interested person. Still service desk managing private persons already successfully use it. As an example Hewllet-Packard Company can be mentioned that offers How-To series video materials on Youtube, instructions and trainings on Slideshare and in other ways actively use most popular social networks to communicate with their customers.

VII. SERVICE DESK TRENDS IN LATVIA

In order to specify mentioned references in this article which are considered in Latvia’s Service desks and to familiarize one with trends that are used in our country, the article’s authors carried out a small survey, which was sent to 42 service desks. The data acquired was later compared to the Service Desk Institute (SDI) survey [11], where the information on Great Britain’s service desks’ actions is found. 14 service desks participated in the survey, which is not a large number for the results to be taken objectively, however, apart from large private enterprises as well as government ones that were participating in the survey, there were also relatively small companies of different activity fields, so the results obtained can be trusted.

Activity fields of survey completed enterprises’ are divided as follows:

- Government management - 36%;
- Information technology - 36%;
- Energetic - 7%;
- Education - 7%;
- Finances - 7%;
- Other fields of activities - 7%.

A. Used standards

First of all, the article’s authors were interested in what are the most popular standards and frameworks that are used in Latvia’s service desks. The results obtained can be examined on Fig. 2. Having summarized the answers provided it became clear that the most popular framework in Latvia is ITIL, it is used by 29% enterprises, mainly government ones. But this number is relatively small comparing to Great Britain’s one, where ITIL is used by 70% service desks.

36% of questioned service desks work without any specific standards, however that doesn’t mean that these service desks have no specific working principles that they stick to. The major part of questioned service desks that have chosen the opportunity, marked that their enterprises have created selfset frameworks, which are based on ITIL principles. Other standards and frameworks are rarely if even used in Latvia at all.

![Fig. 2 Standards, that are used in service desks](image)

B. Employee number

For better understanding of such a vast difference between Latvia and Great Britain in using ITIL standard, it is best to analyze the difference of employee number in both countries mentioned. There are 30 employees on average working in service desks on support level one in Great Britain based upon SDI research, 43 more are working on support level two. The average number of senior-employees is 7.

The status in Latvia can be examined on table 1.

<table>
<thead>
<tr>
<th>Employees</th>
<th>Value (%)</th>
<th>Employees</th>
<th>Value (%)</th>
<th>Employees</th>
<th>Value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>19%</td>
<td>1-10</td>
<td>36%</td>
<td>1</td>
<td>29%</td>
</tr>
<tr>
<td>6-10</td>
<td>21%</td>
<td>21-30</td>
<td>7%</td>
<td>4-5</td>
<td>21%</td>
</tr>
<tr>
<td>11-15</td>
<td>7%</td>
<td>31-40</td>
<td>7%</td>
<td>5-7</td>
<td>7%</td>
</tr>
<tr>
<td>16-20</td>
<td>7%</td>
<td>41-50</td>
<td>14%</td>
<td>8-12</td>
<td>0%</td>
</tr>
<tr>
<td>&gt;20</td>
<td>7%</td>
<td>&gt;50</td>
<td>14%</td>
<td>&gt;13</td>
<td>0%</td>
</tr>
<tr>
<td>Average</td>
<td>6</td>
<td>Average</td>
<td>6</td>
<td>Average</td>
<td>4</td>
</tr>
</tbody>
</table>

There is one important conclusion to be made based on data in this chart – at least, on the employee number view service desks in Latvia are quite heavily falling behind Great Britain ones. To be exact, it is likely to be linked to low ITIL usage rate, because of those Latvian enterprises using this framework on employee number view is very close to Great Britain’s average rate or even exceeds it.
C. Types of communication with the client

The most popular communication types between service desk and users were compared. This comparison can be examined on the Fig. 3.

It is not a surprise that most popular communication types in Latvia are phone and e-mail, that are used by almost every service desk, although it is the same in Great Britain, too.

It has turned out to be that chat and IM client communication types are also popular in Latvia, one third of questioned enterprises uses this opportunity, but as for Great Britain, the number is far smaller.

![Fig. 3 The comparison of communication types](image)

Social network usage as a communication type isn’t approved by of questioned enterprises, but in Great Britain this opportunity is not scarcity at all. However, it can be likely explained by major part of questioned enterprises’ not attending private individuals, to whom social networks are at hand. Apart of that, the opportunity is not willful in Latvia yet.

D. Used metrics

In order to successfully control service desk operation, it is always necessary to take care after regular quality checks of characteristic values or metrics. It is possible to examine which metrics are used in Latvia’s service desks on table 2.

TABLE 2

<table>
<thead>
<tr>
<th>Metric</th>
<th>Do measure (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of incidents fixed at first level</td>
<td>64%</td>
</tr>
<tr>
<td>Number of incidents logged on a periodically basis</td>
<td>57%</td>
</tr>
<tr>
<td>Average call negotiation length</td>
<td>29%</td>
</tr>
<tr>
<td>Incident average life time</td>
<td>29%</td>
</tr>
<tr>
<td>Other measures</td>
<td>21%</td>
</tr>
<tr>
<td>Average cost per call</td>
<td>14%</td>
</tr>
</tbody>
</table>

There are better results in every category in Great Britain, e.g., the number of incidents resolved at the first level is measured by 91% enterprises, but the monthly number of registered incidents is measured by 87% enterprises.

Such a big difference can be explained by the fact that Latvia uses far less ITIL methodology, which defines the usage of metrics by any means necessary.

E. Self-service systems

During the research it was found out that the most popular self-service system in Latvia is simple frequently asked questions (FAQ) preparation and its transference to users, this opportunity is used by 80% service desks. Other self-service systems’ types are used rarely, e.g., knowledge base is used by 36% enterprises. Help forums and social networks are not used at all.

Several questioned enterprises use self-developed help portal.

There is no chance of comparing these values to other countries’ ones, because the SDI didn’t include this characteristic of service desk in the research.

F. Other survey results

Taking into account all previously reviewed service desks’ characteristics, there were other questions in the survey, i.e., ‘how long does it take for a new employee to get acquainted with the job before starting it’, the average working period of service desk operators before changing rank or place of work. The answers in both cases, which provided Latvia’s enterprises, were almost equal to Great Britain’s experience. This is related to these characteristics not being directly dependent on service desk’s used standards and frameworks.

By the end of survey it was also found out that the formal predefined service level agreement (SLA) is being used by 50% Latvia’s service desks. Mainly these are state administrations and large enterprises. In Great Britain SLA is being used in 71% occurrences based on SDI research.

VIII. Conclusions

Experience of authors allows concluding that tips and advices given in this paper will be useful in IT service desk implementation project. Use of these advices might help to overcome critical mistakes and ensure effective operation of service desk. Such service desk will not only cope with supporting of end-users but also will stimulate preventive action to be taken before problems became critical.

REFERENCES

Марис Харенко, Пьетрос Доровс, Андрея Романовс. IT пользователи: Táh pokupinumu dienesta ievisšanas risinājumi

Раздел переданных ла́йта изключительно активно, которые, приведены из работы ещё и эффективные, в отличие от конечных методологий, например, ГММ. Это способствует более конкретному осознанию каждой конкретной ситуации. К тому же, саму работу службы поддержки следует рассматривать, основываясь на конкретной методологии. Как показывает опыт автора, успешным примером является ITIL, который основан на использовании лучших практик в области управления ИТ.

В процессе внедрения службы поддержки особое внимание нужно уделять выбору системы управления самой службой поддержки и обучению пользователей. Это связано с тем, что именно эффективное использование системы управления самими пользователями является одним из важнейших факторов эффективности работы службы поддержки.

Однако использование службы поддержки в виде обычного инструмента для решения инцидентов и проблем, и её эффективная работа зависит от множества человеческих факторов, которые рассмотрены в данной статье, и их нельзя игнорировать.

Для успешной работы службы поддержки также необходимо использовать системы самообслуживания (self-service) и максимально использовать то число каналов связи, по которым пользователь может обратиться в службу поддержки. В том числе, социальные сети.

Опираясь на проведенный опрос, в котором были опрошены Латвийские службы поддержки, авторы, сравнили полученные результаты с Великобританией, констатировали, что средняя служба поддержки в Латвии довольно мала и в своей работе не использует ни конкретную методологию, ни стандарт, утвержденные же рамки и принципы, которые используются, основываются на такой технологии, как ИТIL.

К тому же, большинство служб поддерживаются в которых числа сравниваемо с показателями Великобритании, основывают свою работу именно на конкретной методологии, самой популярной из которых является ITIL.