Nova MIM Work Project

Analysis of Methods to Increase the Effectiveness of Processing Corporate Clients Credit Applications

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Table of Contents

I. Context of the Business Project

The aim of the business project in cooperation with Sberbank is the analysis of the credit application process of corporate clients. Sberbank is the largest bank in Russia and focuses mainly on retail banking, where it enjoys a market share of 45.7% measured by the amount of retail deposits. Its corporate and retail lending branches have a market share of 33.6% (4% CAGR since 2010) and 32.7% respectively. Generally, the bank is among the largest 20 in the world according to its market capitalization and is to 50% owned by the Bank of Russia.

The credit application process for corporate clients includes several agents as depicted in figure 1 of appendix 1. The process starts with the client manager, who collects all the necessary documents and information from the client. The complete set of information is then forwarded to credit analysts, a decentralized market-facing function within the process, who perform a detailed risk analysis mostly in accordance with Basel II. The risk analysis includes models concerning the probability of default, loss given default and cash flows. After performing the analysis, credit analysts prepare a formal credit application and request a limit. Sequentially, credit applications are evaluated by three support departments, which are concerned with legal issues, collateral and security type. The credit application together with the opinions of support services is channeled via a dispatcher to the underwriting branch. The purpose of the dispatcher is to allocate the application to underwriters according to their current workload and level of expertise. Namely, underwriters are divided into five categories of expertise indicated by levels 3 to 7. Additionally, division of the department is constituted by the industries that underwriters are assigned to. The four main industries are construction, trade, military/leasing/communication, and municipalities. There exist in total 6 underwriter departments in all of Russia with the most important branches in Moscow and Saint Petersburg. Underwriters comprise a final filter of the credit application incorporating all information previously developed by the other departments. They take the decisions of approving or disapproving a credit application and are subject to predetermined time scopes depending on the task they carry out. If underwriters believe that an application should be revised, it is sent back to credit analysts for reconsiderations. After reconsiderations the application is again delivered to underwriters and the evaluation process is repeated.

The theoretical framework we used for the analysis of the process is Business Process Reorganization (see appendix 2), which constitutes of a thorough analysis of the AS-IS situation including three dimensions namely (a) the process flow, (b) organizational units/roles, and (c) the system support/data structure. By identifying the main problem areas and developing corresponding solutions, we created the TO-BE situation. This includes the development of a detailed process model, an analogous organizational structure and an action plan for implementation purposes.

In order to analyze the credit application process, we used mainly three tools. Personal biweekly meetings at the Sberbank headquarters in Saint Petersburg constituted the first and most important tool in which Sberbank provided us with detailed information about the process, direct feedback on preliminary findings as well as advice on the feasibility of our improvement suggestions. After gaining a first insight on the process and the different sub-processes, we developed a questionnaire for employees in line with Business Process Reorganization namely divided into questions relating to input, work processes, and output. Thirdly, Sberbank provided us with a complete output database of 2013 including new credit applications as well as modifications to existing ones. The database depicted the product itself, the underwriter responsible for the task, the time spent by the underwriters and credit analysts, violations of predetermined time scope, and revisions i.e. when underwriters deem it necessary that an application be revised.

The main findings of our analysis showed that several sub-processes could be automized, which would in total save about 68 minutes (see the first section of appendix 3 for details).

Furthermore, we found that some responsibilities of underwriters either do not correspond to their level of expertise or simply demand considerable amounts of time without providing large value. We believe that these tasks can either be outsourced or improved via data management tools. Firstly, underwriters have to verify the compliance of the deal structure with internal normative documents, which basically indicate the internal regulations concerning credit applications. Such normative documents are not saved in any central location and underwriters have substantial problems of identifying the new regulations that correspond to their current applications. We therefore suggested adopting a new database for those internal normative documents with a clear structure (see section 2 of appendix 3 for details). Additionally, underwriters perform market research for given industries that concern their current credit application. We considered this task not to be corresponding to the level of expertise that underwriters possess and suggested therefore an external market research department that operates in a centralized office in Moscow where Sberbank already has a research department concerning the macroeconomic environment allowing for synergies to arise. Underwriters as well as credit analyst could leverage this research department (see the third section of appendix 3 for details). The last part of our recommendation concerned the structure of the analyst function. From the database output provided by Sberbank we were able to show a positive correlation between the number of revisions and the level of underwriter indicating a disconnection of expertise between credit analyst and underwriters of higher levels (see figure 4 in appendix 3, section IV). We therefore suggested a clustering of analysts similar to the one of underwriters with higher levels corresponding to higher expertise (see figure 5 in appendix 3, section IV).

II. Further Development of a Specific Topic

During the cooperation with Sberbank we focused primarily on the underwriter department due to the time scope of the project and the fact that we had direct access to employees of this function. We, therefore, centered on recommendations, which actually appeared to be feasible and for which we received imminent feedback by employees. Our approach was to elaborate on recommendations that we developed together with the employees of Sberbank in order to provide the highest value possible for the company. Nevertheless, the structure of the whole credit application process seemed to depict several inefficiencies that should be counteracted upon. The retail banking sector is a key resource of revenue for Sberbank emphasizing the importance of establishing an efficient and effective process. For the further development of a topic I chose to compare the two most important functions in the credit application process namely underwriters and credit analysts.

a. Critical Assessment of the Credit Analyst and Underwriter Function

Since the financial crisis in 2008, credit underwriting has gained extensive attention. The credit bubble of the United States severely affected the economy and put many financial institutions out of business. Easy credit conditions in combination with securitization have caused a long lasting economical crisis in many parts of the world exemplified by the global banking crisis or the sovereign debt crisis. Before the crisis, the main variables of credit underwriting were speed, cost, efficiency and customer satisfaction whereby disregarding effectiveness i.e. risk cost (Becker, Harreis, Manzonetto, Piccitto and Skalsky, 2010).

The Russian market presents some very challenging particularities for credit approval processes. Corruption is very far spread in the country and even affects the underwriting process for Sberbank. While first familiarizing with the credit application process, we asked Sberbank for the reason why there are basically two functions i.e. credit analysts and underwriters that provide largely the same task, while one function is centralized whereas the other one is decentralized and market-facing. The company representatives informed us that corruption constitutes the main reason why the credit application process exists in its current form. Especially credits given to municipalities constitute a main problem area.

Whereas underwriters are divided over six centralized departments in the major cities of Russia, analysts are spread over the many client offices in the country. Credit analysts and underwriters are under most circumstances in no direct contact but are rather connected by the dispatcher, who operates as a middleman between the two functions. Both functions, credit analysts as well as underwriters, depict an extensive overlap in the tasks they perform, visible in figure 1 of the appendix 1. This overlap constitutes duplications that could be characterized as inefficiency. The major difference between the two departments is that underwriters also take into consideration the information input of the support departments and bear more responsibility, as they make the final decision of approval and disapproval. Additionally, it can be said that underwriters have more expertise than credit analysts indicated by their average salary of RUB76.000 and RUB45.000 respectively[1]. Due to the large overlap in the performed tasks of underwriters and credit analysts, direct communication depicts a desirable tool for general clarification purposes and quick responses to arising questions. Nevertheless, as mentioned before direct communication is prohibited due to conflicts of interest and, hence, the dispatcher is used to channel the credit applications between the two departments. Under normal circumstances the dispatcher appears only once in the process when he forwards the credit application together with the opinion of the support services to the underwriters. If, however, a credit application needs to be revised because information is incomplete or needs to be adjusted, the dispatcher allocates the credit application back to the analysts. For this matter, underwriters formulate clear recommendations for change, which are attached to the credit application and as well forwarded to credit analysts. After incorporating the adjustment suggestions of underwriters, the credit application is again channeled via the dispatcher from credit analysts to underwriters for a second reconsideration. This process is repeated if the underwriters believe further changes need to be made. We have shown that such revisions lead to significant increases in time for all products (see appendix 2 of Business Project).

The credit application process at Sberbank raises several questions. Firstly, what is the real value added of the credit analyst function in Sberbank? Secondly, how does the combination of a decentralized analyst function and a centralized underwriter function, which perform to a large extend the same tasks affect the general efficiency and effectiveness of the credit application process?

There are several arguments against and in favor for centralized independent versus market facing underwriter departments mainly relating to efficiency and effectiveness. Theoretically,

[1] Source: Sberbank company information & Headhunter Russia

turnaround time of the process can be reduced significantly with decentralized market facing underwriting functions for two reasons. Less steps in the credit application process generally decreases time and direct contact with the client allows gathering needed information much faster. Furthermore, a shorter process reduces cost per credit application and increases customer satisfaction because approval time is reduced. Nevertheless, according to the 2008 Small Business Benchmark Study published by Baker Hill, centralized underwriter functions reveal a decision-making time of almost two times faster than their decentralized counterparts. Further, customer satisfaction might be increased because there is generally higher predictability for the outcome of the credit application, as there is less potential for conflicting opinions due to full accountability for risk and revenue at the same time (Becker et al., 2010). On the contrary, decentralized market-facing underwriting proliferates the chance of subjective judgment or prejudicial biases whereas centralized underwriting allows for a maximum amount of objectivity. This mitigates the probability of misconceiving the risk cost of an application, therefore, proliferating efficacy. Furthermore, the centralized approach has another important advantage of utilizing economies of scales. Credit analysts of Sberbank are spread over the many important client centers throughout Russia, which calls into question an efficient level of capacity utilization due to the instable inflow of credit applications. In times where the amount of credit applications in a particular region is comparably lower, resources might not be used to their full potential. Conversely, this can also create bottlenecks whenever there is an unexpectedly large inflow of credit applications. This might lead to increased time per applications and in turn to lower customer satisfaction. A centralized department counteracts such obstacles and leverages economies of scale and economies of capacity utilization because fluctuations of the inflow of credit applications in different regions can be compensated for by the centralized locations.

When evaluating the credit analyst function on the characteristics of a market-facing decentralized underwriting function several inferences can be made. Firstly, the argument of time does not apply because analysts still have to forward their credit applications to the underwriter department and simply do not have the authority to approve or disapprove a credit application. The argument is amplified by the significant increase in time when an application needs to be revised. Complementary, higher predictability of the outcome of the credit application as well as accountability of risk and revenue can also not be deduced, as the underwriting department performs a separate independent risk analysis of all applications. In fact, since the tasks of underwriters and credit analysts overlap largely and underwriters basically verify the work of analysts, responsibility simply shifts from analysts to underwriters. This might affect their work behavior due to incoherence in responsibilities and lastly incentives. Additionally, the market-facing nature of the analyst function might also induce subjective judgment in the credit applications.

The main reason why many of the advantages of either a market facing or an independent centralized underwriting unit cannot be leveraged is the coexistence of both function in the credit application process of Sberbank. The underwriter function in Sberbank in fact provides an objective judgment for the credit application, however, the input underwriters receive might already be affected by subjectivity. It remains, therefore, questionable if underwriters exhibit the capabilities of correctly assessing the application with objectivity while identifying prior subjective judgment of credit analysts. This can have severe effects on the risk cost of the credits given. Nevertheless, the centralized underwriter function leverages economies of scale and resource utilization by compensating for fluctuations in the inflow of credit applications. However, the argument of the economies of scale and resource utilization needs to be evaluated by analyzing the credit application process as a whole instead of on a stand-alone basis of the underwriter function in Sberbank. Here it becomes evident that the process only leverages economies of scale as well as resource utilization to some extend because the positive tendencies in relation to the two metrics induced by the underwriting department is again neutralized by the analyst function. In conclusion, the underwriting process in Sberbank does not leverage the advantages of the either a centralized independent or a market facing decentralized underwriting function but rather exhibits main inefficiencies due to the coexistence of the credit analyst and the underwriter function.

b. Integration of the Analyst and Underwriter Function

While acknowledging the fact that corruption affects the credit application process, it should be the main target of the bank to create a process structure that allows to leverage some of the advantages of the either the market facing or independent approach to their fullest potential.

The integration of the two departments into one independent centralized department should be the long-term goal of Sberbank. In the critical assessment of the two functions it was shown that the coexistence of the two departments neutralizes most of the benefits of either a market facing or an independent underwriting approach. The integration of the two departments has, therefore, several advantages. Direct communication between the two functions significantly reduces the time to approve the application positively influencing customer satisfaction. Secondly, the more experienced underwriters could effectively guide the work process of credit analysts, eliminate errors on the spot and retrace the many inputs of the application. Credit analysts could benefit from the integration by the transfer of knowledge from credit underwriters to analysts, which is currently largely inhibited and solely done through the formulated recommendations of underwriters if they perceive adaptions have to be made to an application. An active exchange between the two functions would allow analysts to go down the learning curve mitigating the probability of erroneous applications in the future. Fewer erroneous applications would lead to less first and second revisions significantly diminishing the inputs of time and human resources per application. Consequently, cost per application would decrease as well. Furthermore, the integration of the two departments would reduce the amount of duplications in the process because cooperation of the two functions would eliminate subsequent execution of tasks.

The recommendation of integration of the two departments is clearly supported by the input problem that was identified through the means of the questionnaire and the database output for the credit application of 2013 provided by Sberbank. The questionnaire revealed that about 81% of all respondents disagreed with the statement that the input by credit analysts is sufficient to properly evaluate the credit application. Furthermore, we conducted a correlation analysis on the database output provided by Sberbank, comparing the amount of revisions and violations to the underwriter level. We found a strong positive correlation when comparing these variables, clearly indicating a disconnection of expertise between credit analysts and underwriters of higher level. Such large amounts of erroneous application for underwriters of higher levels is especially problematic taking into account the fact those underwriters generally deal with applications that are of larger volume and difficulty. These applications come from the most important clients of Sberbank and obviously correspond to a larger revenue stream simply due to their volume. While already advising a clustering of the analyst function as a main part of the recommendations in the Business Project, such an approach could be more effectively done with a centralized integrated function of the two departments. In case of integration, the dispatcher would be located before the combined function of credit analysts and underwriters and allocate the credit applications according to expertise.

In the short- and medium-term, Sberbank could consider combining at least some underwriters with analysts for example for credit applications of very large and loyal customers that have proven a sound credit history and financial results throughout the past. Due to their volume, these applications are mostly the ones corresponding to underwriters of higher levels and include prominent companies such as Gazprom or Aeroflot. Proper treatment of those clients is of vital importance to ensure loyalty for the future. This short- and medium-term solution could help smoothing the transition process of the integration. In the short- and medium-term credit applications for municipalities, where corruption presents the largest thread, could be omitted from the integration.

While the integration of the two departments makes sense in term of efficiency, efficacy has to be taken into account as well. Efficacy can largely be affected by corrupt practices in which stated information is falsified, manipulated or misconceived, which in turn understates the client risk and, hence, the risk cost. The integration of the two functions into one centralized independent department does hamper the corruption issue to some degree but it still provides an imminent threat to the operations of the company. Therefore, I suggest two complementary measures the bank has to adopt before the integration process. The first is related to incentives and in particular to compensation schemes. I recommend a generally low fixed salary in combination with a competitive bonus system. This bonus system should not only be targeted at efficiency, as currently in place, but rather take efficacy into account. Currently, underwriters are able to receive a bonus per application based on several criteria where one of the most important factors is the deviation of the predetermined time scope for the different kinds of products. If an underwriter needs less time than predetermined for an application, it is positively valued and vice versa. This might lead to proliferation of applications but does not take into account the efficacy. For this purpose, I advocate that Sberbank retains some of the bonus payments of employees in order to observe whether or not the risk cost was appropriately estimated throughout time. The risk cost can be tracked to calculations of the probability of default, loss given default and others, which are performed by credit analysts as well as underwriters. It is very important that the bonus scheme is applied to credit analysts as well as underwriters in order align incentives. Since there is such a large overlap in the tasks those two functions perform, it is rather simple to adjust the bonus system accordingly. Credit analysts and underwriters would hereby be alongside accountable for the credit applications they processed. Such a bonus system concerning efficacy i.e. risk cost could not only mitigate the problem of misstating or manipulating information but also resolve the issue of shifting responsibility by aligning incentives of the two functions.

The second measure that has to be taken into account when integrating the two departments is a corresponding data management tool that neutralizes the corruption effect or prejudicial biases. Even though the bonus system concerning efficacy antagonizes those effects it does not eliminate them. Such data management tools could include background checks of employees or case-by-case special considerations of clients where the risk of fraud is higher e.g. municipalities. The source of corruption has to be analyzed extensively, which represents the main limitation of this work, as to tailor such systems accordingly.

III. Reflection on Learning

Generally, I consider the CEMS Business Project as a great experience for my future professional life as it came very close to the work of a consultant, which is a career path that I want to pursue. It was rewarding to engage in such a practical project in the end of my academic career, as it constitutes a smooth transition to the professional life.

a. Application of Previous Knowledge

Courses related to strategy and supply chain management constituted the main source for application of previously knowledge. The knowledge I gained from supply chain management was very useful for process mapping and the identification of bottlenecks. In particular, it clarified the relationships of different sub-processes and helped to elaborate feasible solution mechanisms. Complementary, as strategy courses are probably most related to the practice of consultants, this knowledge was especially useful. It helped to create inductive and deductive relationship between the current practices and the recommendations we gave to Sberbank such as the outsourcing of the research department and the restructuring of the analyst function. Furthermore, I consider two further experiences during my CEMS MIM very helpful for the project. Firstly, during CEMS Block Seminar at Guincho, the students were given the opportunity to consult different institutions whereby my group chose the Companhia Nacional de Bailado. Secondly, during the last semester I took on the role as the vice president of the Nova Consulting Club, which gave me hindsight on how to approach such a consulting project.

b. New Knowledge

On the side of new knowledge, I found especially interesting the theoretical framework of Business Process Reorganization. The usefulness of this approach was especially imminent due to its capability of simplifying complex relationships between processes. Additionally, it serves as an ideal roadmap to come up with recommendations to improve the underlying business processes and illustrates them quite elaborately when the different steps are respected.

Apart from theoretical frameworks, the practical experience of working with an actual client gave me some important insight into the profession of a consultant. Throughout the process, I learned that it is very important to include the client when elaborating on solutions for improvement. It seemed that Sberbank was much more prone to accept the existence of problem areas when it was actively involved in the identification process. Our group always gave company representatives the opportunity to get actively involved in our work processes and feedback was respected and incorporated. This allowed our group to establish a very healthy relationship with Sberbank in which all were treated as professionals. We received great confidence from the employees turning out to be a very strong motivational factor.

c. Personal Experience

Ability to function as a team leader as well as fostering relationships within the team and with the corporate client are among the key strength that I would like to mention. I developed strong leadership skills during my time as vice president of the Nova Consulting Club, which helped to keep a clear target during the time of the project. I motivated students and always tried to structure tasks in a goal-oriented way. I believe to have cultivated cooperation and healthy work relationship between the students. Furthermore, in the beginning of the project we encountered some political issues with the choice of our topic, which led to strong headwinds from some parts of the company. By promoting and engaging in a reflective dialogue between Sberbank, the faculty and the students, we were able to solve those issues and proceeded with the same topic after all.

Lack of professionalism can be mentioned as one of the key weaknesses that manifested itself in the beginning of the project. Since my prior work experience includes either young or very small companies, I was always faced with a rather informal work environment. Sberbank, however, is a very traditional and large company in which formal behavior at the job is an absolute necessity. I had to adapt my behavior accordingly and wish to develop this skill further in the future, especially because I plan to work for a larger company in the beginning of the professional life.

d. Benefit of Hindsight

I strongly believe that our healthy relationship, which we established in the process with the employees of the company, constituted the most important source of value addition. On the one hand, the trust we received from employees turned out to be a very strong motivational factor, as we were given the feeling that our input actually mattered to Sberbank. On the other hand, it allowed us to receive all necessary inputs from Sberbank upon request, which enabled us to carry out a very thorough analysis of the credit application process again translating into a valuable input for the company as well as for our professional development.

In the beginning of the project, Sberbank approached us without having a clear predefined topic that we should elaborate upon. We tried to identify a topic as quick as possible but we still lost about two weeks in the process. This should have been done differently, as time is such an important factor for the CEMS Business Project.

Sources:

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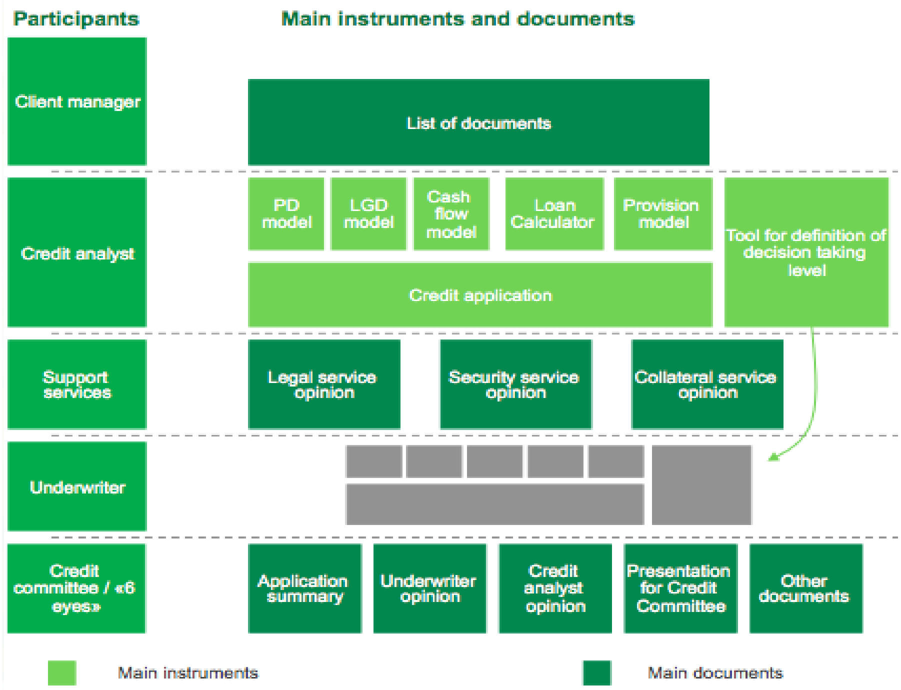
Appendix 1: Description of the current credit application process

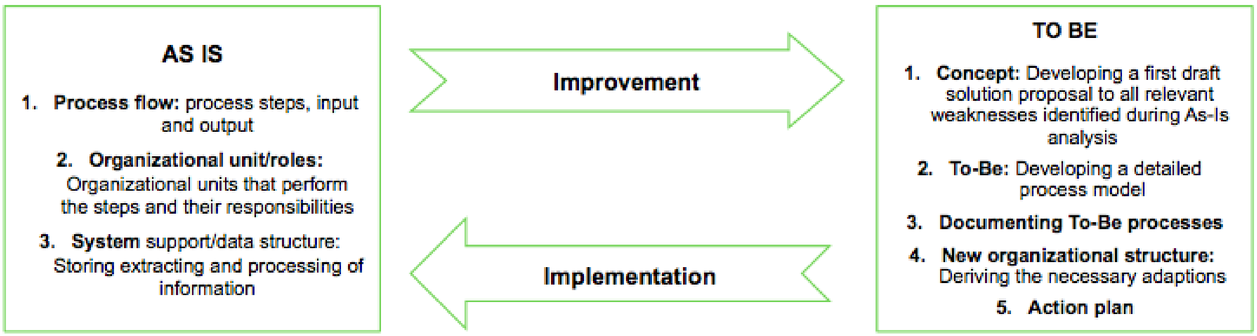
Figure 1: The current credit application process



Source: Sberbank company presentation, March 2nd 2014

Appendix 2: Business Process Reorganization

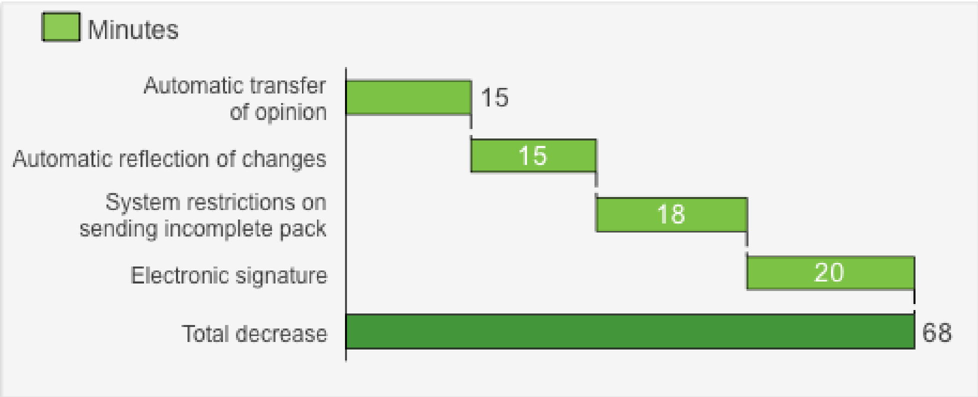
Figure 1: Process Reorganization Procedure



Appendix 3: Recommendations

I. Automatization

Figure 1: Automatization Suggestions



a. **Automatic transfer of opinion:** Whenever underwriters prepare their opinion they have to type it two times manually into two different systems. Either one of them was estimated to take about 15 minutes and can be characterized as duplication with very little value. Confidentiality issues are the main reason for this, as employees have different clearings for the two databases. Simple electronic transfer would save 15 minutes.

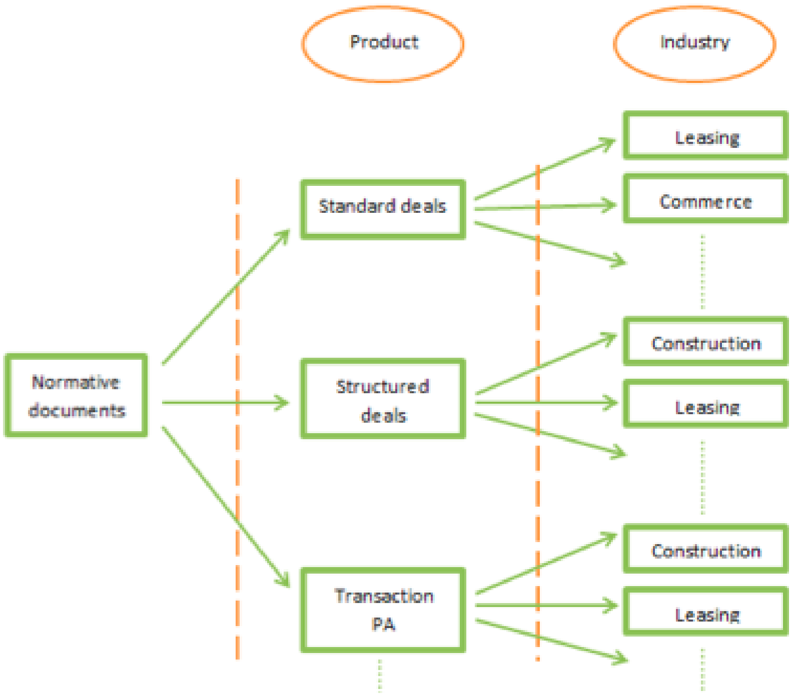
b. **Automatic reflection of changes:** Changes of rating calculations are not indicated in the electronic output of underwriters and need to be investigated upon, taking up about 15 minutes. A mechanism of tracking changes could definitely offset this problem.

c. **System restrictions on sending incomplete pack:** Underwriters verify the completeness of documents they receive from credit analysts, which takes about 18 minutes per application. This process could clearly be eliminated by simply applying an automatic control mechanism where incomplete application could not be sent. The effect of this measure is twofold because it would not only save 18 minutes per application but also reduce the number of first and second revision, which are due to incomplete sets of documents.

d. **Electronic Signature:** Even though all necessary tools for electronic signatures are already in place, underwriters take about 20 minutes to include their signature in their applications due to printing, signing and finally scanning of their opinion.

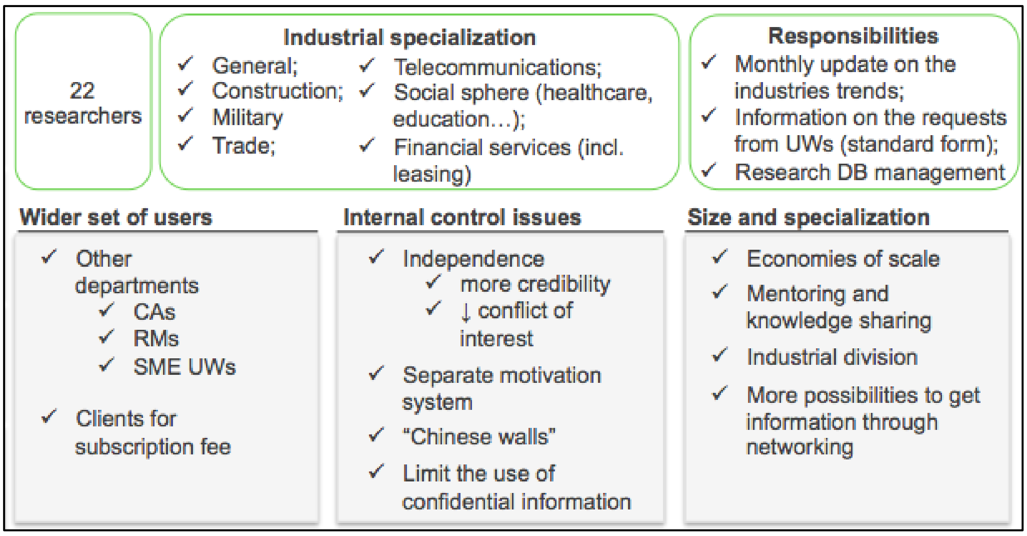
II. Database for internal normative documents

Figure 2: Database structure



III. Research department

Figure 3: Research department for non-investment banking purposes



IV. Restructuring of credit analyst function

Figure 4: Correlation analysis

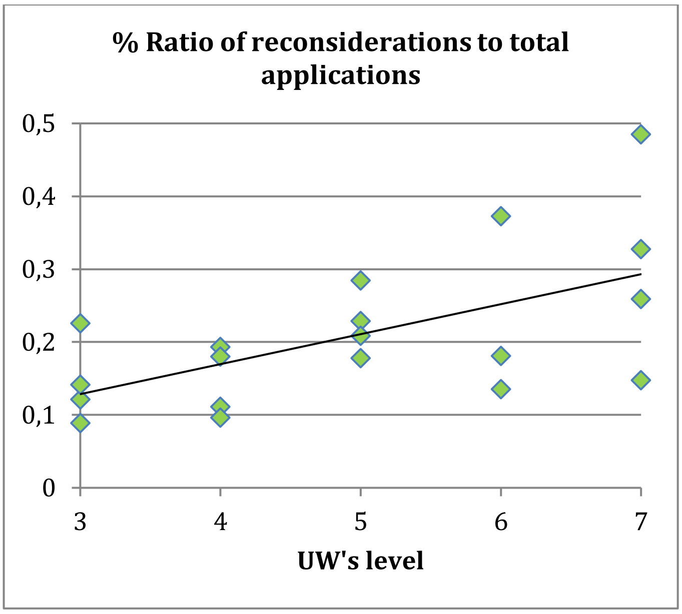


Figure 5: New structure of analyst function