

4th International Conference on Production Economics
and Project Evaluation
ICOPEV 2018, Guimarães, Portugal

RISKS, ISSUES AND CRITICAL SUCCESS FACTORS IN SHARED SERVICE CENTER PROJECTS

Joana Ribeiro,^{1*} Gabriela Fernandes^{1,2} and Anabela Tereso^{1,2}

¹ Department of Production and Systems, University of Minho, Portugal

² ALGORITMI Research Centre

* Corresponding author: pg24320@alunos.uminho.pt, University of Minho, Campus de Azurém, Guimarães, Portugal

KEYWORDS

Project management, Shared service centers, Risk, Issues, Critical Success Factors

ABSTRACT

This paper is based on a case study performed in a Shared Service Center from SEG Automotive group, a former automotive division from Bosch. Due to the Bosch decision of selling the business unit of Starter Motors and Generators, it was required to create a Shared Service Center which performed the processes, until then executed by central departments to all Bosch divisions. This paper will focus on the project of processes transfer from the Bosch departments to the Shared Service Center.

Through semi-structured interviews to the leadership team, it was intended to identify the major risks and issues of those projects and its critical success factors, in order to allow the management to work on measures that can avoid the risks and issues and potentiate the project success. The results show the importance of the alignment and cooperation of all stakeholders during the whole project life. It turns also clear the need of a project manager that leads the project, guides the team and has authority for decisions making. Moreover, the influence of the project team within the project is clear, being crucial to have experience, flexibility and multilanguage knowledge.

INTRODUCTION

Due to the actual increase of demand for more productivity, more corporate responsibility and less costs, the companies should accurately evaluate the value of its investments. All functional departments within an organization must work with focus on cost and time reduction (Thomas, 2008). In this regard, the Shared Service Center (SSC) came as an organizational strategy for the increase of efficiency, consistency, risk and cost reduction, generating agility and flexibility and the use of actual processes following a service provider mindset (Janssen & Joha, 2008).

To turn it a successful strategy it is required to have an organized and competent management which allows to leverage the success of the SSC. The ramp-up years

required additional investment in order to do a proper transfer of the processes from previous departments to the SSC. Hence, project management arises as an allied for the increase of the probability of project success (Joslin & Müller, 2015).

While the literature provides some guidance on how to manage projects (PMI, 2017) and risk management (Aven, 2016; PMI, 2009), the specific context of SSC, with multiple stakeholders and high complexity, demands a research effort to produce effective guidelines for this particular context, as project management is highly dependent on project context (Besner & Hobbs, 2013).

Therefore, this paper aims to present and discuss the results of an exploratory study applied to a case study performed in a SSC from SEG Automotive group, a former automotive division from Bosch group. The decision of selling the division of Starter Motors and Generators by the Bosch management in 2015, required to establish a SSC which insures the functions previously performed by central departments for all Bosch divisions. As a result, in September 2016, the SSC from SEG Automotive group was created in order to turn the Starter Motors and Generators division independent on finance, purchasing and sales functions. Since then, many teams travelled to various European Bosch sites to acquire knowledge and bring it to the SSC.

This study will focus on the projects of process transfer to SSC and aims to provide a guidance to the management of SSC, in order that they can work on the main potential risks, issues and Critical Success Factors (CSFs), and improve the effectiveness and efficiency of future projects. The issues identified within this paper are potential risks for similar projects, therefore measures can be applied avoiding that those become real issues.

The risk, issues and CSFs vary by project types, life cycle phases, industries, nationalities, individuals, and organization (Müller & Jugdev, 2012). Therefore, this paper aims to answer the following two research questions: (RQ1) What are the potential risks and issues in process transfer projects to SSC? (RQ2) What are the key critical success factors of process transfer projects to SSC?

This paper follows a commonly used structure. The second section presents the Shared Service Centers type

of organizations. The third section discusses project management overview, risks and issues, and critical success factors. The fourth section describes the research methodology applied in this study. The fifth section presents the main findings that emerged from the study. Finally, the conclusions and suggestions for future work are discussed.

SHARED SERVICE CENTERS

The SSC are semiautonomous entities which provide specific services to other entities. It can be compared to outsourced companies, due to the fact there is a customer-seller relation, however in the majority of the cases, both parties belong to the same corporate group (Janssen & Joha, 2008). The concept of SSC was adopted by many private and public organizations and it has been followed by companies which belong to the Fortune 500, but also by smaller entities, focusing in functions related with finance, human resources, purchasing and information technology (Wallace, 2011). Cooke (2006) defends that the complexity of the services provided by the SSC will increase according to the size and level of internationalization of the company. Reilly and Williams (2003) defends that the functions will grow in line with the evolution of the information technology.

According to Michael Page press release, which is one of the biggest recruitment consultants in the world, the hiring to shared service centers in Portugal increased by 35% since the first quarter of 2014, turning clear the investment increase of multinational companies which desire to build their services within one central structure, generating competence centers. The demand is essentially evident within the industry (31,3%) and services (20,6%), mainly to recruit qualified employees. The interested companies on the Portuguese market are coming from Switzerland, France, United Kingdom, USA, Germany, Finland, Belgium and Brazil (Michael Page, 2016).

LITERATURE REVIEW

Project management overview

Project management was employed by the defense departments in the USA in the 50's (Kwak, Carayannis, & Anbari, 2003). Over the years theories, tools and sophisticated techniques were developed, and today are largely spread in different industries and organizations (Kwak et al., 2003). The Project Management Institute (PMI) in the USA was founded in 1969 and since then many other project management organizations were created. The first Project Management Body of Knowledge from PMI was published in 1983 (Hornstein, 2015). The most recent version is the 6th edition published in 2017, replacing the previous from 2013. Olsen (1971) defines project management as the application of various tools and techniques which guide the resources in order to reach an unique, complex and singular task, within the restrictions of time, cost and

quality. Each task requires a combination of particular tools and techniques which adapts to its environment and life cycle. According to Turner (2009), the project must result in a beneficial change to the organization, namely solving a problem or potentiate an opportunity. The concept described has in consideration some of the project success criteria, usually called iron triangle: cost, quality and time (Atkinson, 1999). The project success evaluation can focus on the output but also on its management. This means, the internal efficiency on the above mentioned iron triangle, factors even more important in the actual economic landscape. Even though, the project success criteria have already evolved to many more success criteria (Joslin & Müller, 2015). The project manager assumes a predominant role when it comes to planning, organization, leadership and project control in a way that all processes are correctly developed for the project success (Hornstein, 2015). Kemp (2006) considers that the preparation phase is the most important for the project management. Without it the project fails or takes much more time than required. According to many authors, planning is the critical phase of any project, as even if there is a good performance on the project execution, an inefficient plan will lead to failure (Fortune & White, 2006). With planning it is intended to establish the directions in sufficient detail which allows to inform the project team about what is required to accomplish, when and with which resources in order to generate the deliverables with success (Meredith & Mantel, 2009). The main benefits of the planning process are: uncertainty reduction, efficiency improvement in the operations, clear understanding of the project goals, and finally, to work as a base for the monitoring and controlling processes (Kerzner, 2009). Studies show that when the planning process is improved, the success probability arises (Zwikael & Globerson, 2004).

Risks and Issues

The Project Management Institute (PMI) defines risk as “an uncertain event or condition that, if it occurs, has a positive or a negative effect on a project's objectives” (PMI, 2017). The definition of risk includes both uncertain events which could impact the project negatively (threats), as well as those which may cause positive effects on the project's objectives (opportunities) (PMI, 2009). However, this study focuses only on the negative risks.

The project risk management includes all the processes of planning, identification, analysis, response implementation and monitor of risks within a project in order to maximize the probability of project success (PMI, 2017). The risk identification process aims to determine which risks may affect the project, as well as document their characteristics (PMI, 2017). Key stakeholders should participate in risk identification activities to define responsibilities over the risks and their planned responses. During the project life cycle, some risks may evolve, and others may arise, so it is necessary

to meet with the key stakeholders on a regular basis (PMI, 2017). However, risk identification is just a process that will lead us to the main risk management process which is the risk response plan. It aims to develop strategies to reduce negative and enhance positive impacts on project objectives. It addresses the risks according to their exposure, adding activities and resources to the project schedule and adjusting the budget (PMI, 2017).

According to Piney (2012), once a risk has occurred, it becomes an issue. Therefore, the same author defines issue as “a situation that is known to have occurred and that could affect project success”.

Critical success factors

The concept of success factors is usually credited to Daniel (1961) who introduced it in relation to the ‘management information crisis’. This approach has many proponents, also in the area of project management, and several studies have used it (e.g., Clarke, 1999; Cooke-Davies, 2002; Fortune & White, 2006). However, there are two basic critiques of this success factor approach that emerged from the literature. The first is that inter-relationships between factors are at least as important as the individual factors, but the factor approach does not provide a mechanism for taking account of these inter-relationships. A second critique by Larsen and Myers (1999, p398) is that “the factor approach tends to view implementation as a static process instead of a dynamic phenomenon, and ignores the potential for a factor to have varying levels of importance at different stages of the implementation process”.

Pinto and Slevin (1988; 1992) conducted studies which allowed to identify ten critical success factors that can be managed within the project team (table 1).

The project mission and the top management support come as top priorities, which means it is critical to have a clear understanding of the project target, the proper resources and authority. Additionally, the research conducted by these authors with various project managers, led to the recognition of four complementary factors. Those represent critical areas which are beyond the control of the project team, however having a considerable impact in the project success (Pinto & Slevin 1988). The external factors are the following:

- *Competences of the project team leader and level of authority to perform his duties;*
- *Power and politics within the organization;*
- *Environmental events, this means the probability that external organizational or external factors impact the project;*
- *Urgency, which refers to the importance of performing the project as soon as possible.*

Table 1: Critical Success Factors (Pinto & Slevin, 1992)

Success factor	Description
Project mission	Clearly defined goals and direction
Top management support	Resources, authority and power for implementation
Schedule and plans	Detailed specification of implementation process
Client consultation	Communication and consultation of all stakeholders
Personnel	Recruitment, selection and training of competent personnel
Technical tasks	Ability of the required technology and expertise
Client acceptance	Selling of the final product to the end users
Monitoring and feedback	Timely and comprehensive control
Communication	Provision of timely data to key players
Troubleshooting	Ability to handle unexpected problems

RESEARCH METHODOLOGY

Taking in consideration the research questions, an exploratory qualitative research was carried out in SSC case study, aiming to learn from the experience of SSC stakeholders. The research method applied to the case study was semi-structured interviews to the employees involved in the process transfer projects.

Eight interviews were carried out personally with the management team of the SSC, which was part of the process transfer projects. The interviews took place during calendar week 17 and 19 of 2018 and lasted in average 40 minutes. The interviews were recorded and transcribed. The majority of the interviewees were recruited during the end of 2016 and beginning of 2017, taking part of the leadership of each of the functions transferred to the SSC. Only two of the interviewees were part of the Bosch division before the decision of sale. Concerning their background, three of the interviewees had already worked in different SSC and had taken part of similar projects of process transfer. Another group of three interviewees were already working at Bosch, having some experience in different Bosch projects. Even though, the interviewees were not having theoretical knowledge on project management, therefore it was required to adapt the language and questions in order to avoid technical concepts and designations.

As previously stated, the interviews were focus on the identification of risk and issues during the project of process transfer and also on its critical success factors. The data analysis was based on thematic analysis which is an appropriate technique for exploratory research and theory building purposes (Easterby-Smith, Thorpe, & Jackson, 2008). Thematic analysis determines the presence of themes emerging from the verbal data and deeper meaning embedded in data. Using a coding

process, existing categories and relations can be searched and analyzed to identify existing themes. This analysis measures the presence and frequency of themes or concepts and can be supported by commercially available software packages. In this study NVivo software was used. Computer-assisted counting, weighing, and theme identification processes substantially increase scoring reliability and reduce coding inconsistencies. The process results in conceptual maps presenting relevant themes, their relevance within the text, and their relationship towards each other. These maps are created using the absolute and relative count of words, categories, and terms as by the (computer-assisted) coding processes.

RESULTS AND DISCUSSION

Main risks and issues

The table below summarizes the eight major risks and issues (R/I) identified by the interviewees from the SEG Automotive SSC.

Table 2: SSC process transfer projects Risks and Issues

Risks and Issues
R/I 1: Lack of cooperation and availability from the entities which are transferring the processes
R/I 2: Lack of support from someone who knew the processes and the organization and had authority to solve problems
R/I 3: Incomplete project requirements identification
R/I 4: Difficulty in finding a project team that meets the job requirements
R/I 5: Loss of knowledge
R/I 6: Projects being carried out in parallel without impact evaluation on the transfer project processes
R/I 7: Transferred processes done without following what was formally defined in the past
R/I 8: Changes in the organization of the SSC processes during the stabilization phase

The first issue was recognized by the majority of the interviewees and refers to the lack of cooperation and availability from the parties which were transferring the knowledge, turning the process much more complex and difficult to manage. This brings the second issue, which is the lack of support and authority to solve problems. In some projects, there was no project manager with authority to solve issues and negotiate with the other party, which means the SSC team, in some cases, was not able to get the detailed training and support as planned. Additionally, due to the fact that most employees were new to the company, in some projects the team leaders were not having enough support in order to get integrated in the organization, which is quite complex with many departments and many platforms. It was possible to realize that the project manager role was missing in some of the projects impacting negatively on their progress. The third issue refers to the incomplete project requirements identification. In all the projects there was

a list of processes which were going to be transferred, however not always the list was complete or reviewed by each entity which was transferring the process. This means that some processes were added at a later point in time, requiring considerable adjustments in the planning, mainly on schedule and human resources. Concerning the project requirements, one of the interviewees mentioned that for some entities the linguistic requirements were not clearly defined from the beginning, leading to delays on the recruitment process.

Still related with the employees, the fourth issue identified was related with the difficulty of finding employees which meet the job requirements, from a linguistic and technical point of view. As an example, an employee which speaks fluently German, with education and working experience in accounting and SAP knowledge was not easy to find. As a result, additional training efforts were required.

The main risk mentioned by the majority of the interviewees refers to the loss of knowledge. In all the projects, one of the requirements was to create a detailed documentation of all the processes in order to mitigate this risk. However, some of the team leaders emphasized the fact that part of the employees recruited were not having experience on the specific processes, which does not allow them to make the right questions that are now existing.

The R/I 6 refers to the fact that additional projects were being carried out in parallel within the SEG group, mainly IT related ones, which at the end resulted in a complete change of systems while the transfer of processes was still on an immature stage, requiring then a temporary task force to overcome the bottleneck.

The seventh issue regards the cases of processes being transferred not in line with what was formally defined in the past. This brought some discomfort to the employees involved and required additional effort to come to the correct procedure.

Finally, the last R/I resulted from an internal reorganization during the stabilization phase. In general, the processes responsibility changed within the project team, which meant that the processes that one person learned and documented were then shifted to another person. This resulted in some nuisance for some employees which would rather stay with the previous responsibility.

Critical success factors

Table 3 presents the ten key critical success factors identified by the case study's interviewees.

The first critical success factor refers to the planning. Almost all the interviewees identified as crucial to have the good planning which includes human resources planning with a proper list of requirements by function; scope definition that contains a complete list of processes to be transferred; an accurate schedule agreed with the key stakeholders; risk assessment with a response planning; costs planning and communication plan.

Table 3: SSC process transfer projects
Critical Success Factors

Critical success factors
CSF 1: Planning the various knowledge areas of the project (e.g. scope, schedule, cost, risk, communication, human resources)
CSF 2: Project manager empowerment
CSF 3: Creation of steering committee
CSF 4: Escalation process established
CSF 5: Commitment and support from key stakeholders
CSF 6: Flexible project team
CSF 7: Experienced and motivated project team
CSF 8: Project team that speaks the customer's language
CSF 9: Preparation of the project team before in site trainings
CSF 10: Build and transmit trust

The first critical success factor refers to the planning. Almost all the interviewees identified as crucial to have the good planning which includes human resources planning with a proper list of requirements by function; scope definition that contains a complete list of processes to be transferred; an accurate schedule agreed with the key stakeholders; risk assessment with a response planning; costs planning and communication plan. From the ten knowledge areas defined by the PMI (2017), six were defined as critical within the projects of process transfer to a SSC.

Additionally, and still referring to the planning, the interviewees have also emphasized the need of a minimum period of time to plan and execute the projects accordingly. At the moment there is pressure to simply execute the projects of process transfer as soon as possible, without respecting the minimum time and that can lead to additional work that could be avoid with correct planning. This is also in line with the CSF identified by Pinto and Slevin (1992) which referred to the detailed planning and urgency of executing the project and furthermore to the risk and issue 3.

The project manager empowerment is also a CSF, due to his predominant role, as previously stated by Hornstein (2015). The interviewees characterized the project manager as a leader that guides the team, supporting in the access of information and in the resolution of issues or problems. The next two CSF are also linked to the project manager, as it refers to the need of a steering committee and the need of an escalation process. This is directly related with the risks/issues 1 and 2 identified in the previous section.

The commitment and support from the key stakeholders is also a CSF (5), particularly from the top management and from the teams where the processes are being transferred from, which is also consistent with the second CSF defined by Pinto and Slevin (1992) and the risk/issue 1.

The project team was also identified by the majority of the interviewees as a CSF, due to the fact the ramp-up

period requires an additional effort, a flexible team (CSF 6) with experience and motivation (CSF 7), that speaks the customer's language (CSF 8), can make a difference and transmit trust to the organization (CSF 10). In order to achieve that, as also stated by Pinto and Slevin (1992) in the fifth CSP, it's necessary to invest in the project team providing training and documentation that can prepare and introduce them to the in site training period (CSF 9).

CONCLUSIONS AND FURTHER RESEARCH

This paper contributes to individuals and organizations interested in increasing the performance of their projects of process transfer to a Shared Service Center, by identifying the main risks and issues that can occur during the projects of process transfer (research question1), allowing the management to work on measures to avoid it or reduce its impacts. Moreover, it is presenting the main critical success factors (research question2), this means the factors that can potentiate the achievement of the project goals and consequently the success of the SSC creation.

The issues identified within this paper are potential risks for similar projects, therefore measures can be applied avoiding that those become real issues.

Semi-structured interviews were conducted with the team from the SEG Automotive SSC, which were leading the projects of process transfer to the SSC.

The main risk identified within the process transfer projects is the loss of knowledge (R/I 5), which was mitigated with detailed documentation.

In relation to the issues identified in the case study, the interviewees mentioned the difficulty in finding a project team that meets the job requirements (R/I 4), namely to combine the technical knowledge with the linguistic skills (multilanguage knowledge). Concerning the stakeholders, the lack of cooperation and support from them (R/I 1,2) and the incomplete project requirements identification (R/I 3) were further issues recognized.

Additionally, two issues were based on external factors: projects running in parallel within the organization without impact evaluation on the projects of processes transfer (R/I 6) and transfer of processes done without following what was formally defined in the past (R/I 7).

The last issue refers to the reorganization of processes within the SSC during the stabilization phase, which creates some nuisance in the team.

Regarding the critical success factors, the planning of the various knowledge areas has a predominant position, together with the necessity of a project manager empowerment (CSF 2) and a steering committee (CSF 3) which can support in the problem resolution, with an escalation process well-defined (CSF 4). The commitment and support from the key stakeholders is also considered a critical success factor (CSF 5).

Lastly, the project team comes as a critical success factor, as their linguistic knowledge (CSF 8), experience, motivation (CSF 7) and flexibility (CSF 6) are crucial to

build trust (CSF 10). Furthermore, the preparation of the project team before the in-site trainings is also considered a CSF (CSF 9).

As further research, it would be relevant to investigate which project management practices can be adopted within these projects' context in order to avoid the existing risks and issues. Transforming, as suggested by Zwikael and Globerson (2006) the CSFs into Critical Success Processes, which would be the project processes or project management practices that could have the greatest influence on the success of projects. As CSFs are rarely specific enough for project managers to make use of them, the identification of Critical Success Processes or project management practices would allow the project managers to focus on them to insure they are performed with high quality in the project, potentiating its success.

ACKNOWLEDGMENTS

This research was supported by the SEG Automotive Portugal. I appreciate the support from all the colleagues which accepted to be part of the interviews phase. Without their support this work would not have been possible.

REFERENCES

- Atkinson, R. (1999). Project Management: Cost, Time and Quality, two best guesses and a phenomenon, its time to accept other success criteria. *International Journal of Project Management*, 17(6), 337–342.
- Aven, T. (2016). Risk assessment and risk management: Review of recent advances on their foundation. *European Journal of Operational Research*, 253(1), 1–13. <https://doi.org/10.1016/j.ejor.2015.12.023>
- Besner, C., & Hobbs, B. (2013). Contextualized Project Management Practice : A Cluster Analysis of. *Project Management Journal*, 44(1), 17–34.
- Clarke, A. (1999). A practical use of key success factors to improve the effectiveness of project management. *International Journal of Innovation Management*, 17(3), 139–145.
- Cooke-Davies, T. (2002). The “real” success factors on projects. *International Journal of Project Management*, 20(3), 185–190.
- Cooke, F. L. (2006). Modeling an HR shared services center: Experience of an MNC in the United Kingdom. *Human Resource Management*, 45(2), 211–227.
- Daniel, D. R. (1961). Management Information Crisis. *Harvard Business Review*, Vol. 39, N, 111–121.
- Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2008). *Management research*. (Sage, Ed.). Los Angeles.
- Fortune, J., & White, D. (2006). Framing of project critical success factors by a systems model. *International Journal of Project Management*, 24(1), 53–65.
- Hornstein, H. A. (2015). The integration of project management and organizational change management is now a necessity. *International Journal of Project Management*, 33(2), 291–298.
- Janssen, M., & Joha, A. (2008). Emerging shared service organizations and the service-oriented enterprise. *Strategic Outsourcing: An International Journal*, 1(1), 35–49.
- Joslin, R., & Müller, R. (2015). Relationships between a project management methodology and project success in different project governance contexts. *International Journal of Project Management*, 33(6), 1377–1392.
- Kemp, S. (2006). *Project Management made easy*. Entrepreneur Press.
- Kerzner, H. (2009). *Project management: a systems approach to planning, scheduling, and controlling*. New York.
- Kwak, Y. H., Carayannis, & Anbari. (2003). *The Story of Managing Projects*. Quorum Books.
- Larsen, M. A., & Myers, M. D. (1999). When success turns into failure: A package-driven business process re-engineering project in the financial services industry. *Journal of Strategic Information Systems*, 8(4), 395–417.
- Meredith, J. R. ., & Mantel, S. (2009). *Project Management: A Managerial Approach* (Seventh ed). John Wiley & Sons, Inc.
- Michael Page. (2016). Recrutamento para Centros de Serviços Partilhados cresce 35 %. Retrieved from https://www.michaelpage.pt/sites/michaelpage.pt/files/15012016_0.pdf
- Müller, R., & Jugdev, K. (2012). Critical success factors in projects: Pinto, Slevin, and Prescott - the elucidation of project success. *International Journal of Managing Projects in Business*, 5(4), 757–775.
- Olsen, R. P. (1971). Can project management be defined? *Project Management Quarterly*, 12–14. Retrieved from <https://www.pmi.org/learning/library/project-management-defined-concept-1950>
- Piney, C. (2012). Integrated project risk and issue management. Paper presented at PMI® Global Congress 2012—EMEA, Marsailles, France. Newtown Square, PA: Project Management Institute.
- Pinto, J. K., & Slevin, D. P. (1988). Critical success factors across the project life cycle. *Project Management Journal*, 19(3), 67–75.
- Pinto, J., & Slevin, D. (1992). *Critical Success Factors in Effective Project implementation* (2nd Edition). New York.
- PMI (2017). *A guide to the project management body of knowledge (PMBOK guide)* (Sixth edition). Newtown Square, Pennsylvania: Project Management Institute, Inc.
- PMI (2009). *Practice Standard for Project Risk Management*. Project Management Institute.
- Reilly, P., & Williams, T. (2003). *How to Get Best Value from HR: The Shared Services Option*. Aldershot (England): Gower Publishing.
- Thomas, J. (2008). Researching the Value of Project Management. *PM Network*, 22(12), 79.
- Turner, J. R. (2009). *The Handbook of Project-based Management: Leading Strategic Change in Organisations*. New York, McGraw-Hill.
- Wallace, B. B. (2011). The value of shared services. *Healthcare Financial Management : Journal of the Healthcare Financial Management Association*, 65(7), 58–62. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/21789944>
- Zwikael, O., & Globerson, S. (2004). Evaluating the quality of project planning: A model and field results. *International Journal of Production Research*, 42(8), 1545–1556.
- Zwikael, O., & Globerson, S. (2006). From Critical Success Factors to Critical Success Processes. *International Journal of Production Research*, 44(17), 3433–3449.