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EDITORIAL POLICY

Stress testing of the scientific journal

D. Yu. Bolshakov

"Almaz – Antey" Air and Space Defence Corporation, Moscow, Russian Federation

✉ *press@almaz-antey.ru*

Abstract. An analysis of the risks confronted by the editorial staff of the scientific *Journal of "Almaz – Antey" Air and Space Defence Corporation* was made. It is shown that one of the risks brought the journal into a state of stress test and significant increase in input parameters, which affected the work of the editorial board. The article provides data on reducing the negative impact of a stress test and presents the results of simulation modeling of the impact of a stress test on the editorial board of a scientific journal. These input parameters were the flow of articles to the journal, which exceeded the average values of the process reviewing for a short period of time by ten times. To eliminate the impact of stress testing on the work of the editorial board of the scientific journal, measures were taken to neutralize it in the form of an increase in the number of reviewers and early initiation of articles. In addition to the results on reducing the impact of stress testing, a simulation of an impossible flow of articles that exceeds the average by a hundred times was performed, and the time indicators of its processing are given. The model is based on the Monte Carlo method under the assumption that each reviewer has an average processing time of the article received by him, as well as the law of distribution of this time. The results of the correlation analysis of the simulation results and real data on the processing of the received articles are presented, which allow us to talk about the relationship between real and simulated processes.

Keywords: stress test, risk management, editorial board, article flow, average review time

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РЕДАКЦИОННАЯ ПОЛИТИКА

Стресс-тестирование научного журнала

Д. Ю. Большаков

Концерн воздушно-космической обороны «Алмаз – Антей», г. Москва, Российская Федерация

✉ *press@almaz-antey.ru*

Резюме: Проведен анализ издательских рисков, с которыми столкнулась редакция научно-технического журнала «Вестник Концерна ВКО "Алмаз – Антей"». Показано, что один из рисков привел журнал в состояние стресс-тестирования, т. е. к значительному увеличению входных параметров, которое сказалось на работе редакции. Этим входным параметром стал поток статей в журнал, который превысил средние значения за короткий промежуток времени в десять раз. Для исключения влияния стресс-тестирования на работу редакции проведены мероприятия по его нейтрализации в виде увеличения количества рецензентов и заблаговременной инициации статей. Кроме результатов по уменьшению влияния стресс-тестирования проведено имитационное моделирование невозможного потока статей, который превышает средний в сто раз, и приведены временные показатели его обработки. Модель основана на методе Монте-Карло в предположении, что у каждого рецензента есть среднее время обработки поступившей к нему статьи, а также закон распределения этого времени. Приведены результаты корреляционного анализа результатов моделирования и реальных данных по обработке поступивших статей, которые позволяют говорить о связи реальных и моделируемых процессов.

Ключевые слова: стресс-тестирование, управление рисками, редакционная коллегия, поток статей, среднее время рецензирования

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Introduction

Stress testing has emerged in the financial environment to determine the resilience and analyse the sensitivity of processes to significant changes in input parameters [1]. For the given purpose, a certain situation is modelled, for example: what happens if the oil price falls by 400 % in one month or if the stock markets rise by 25 % within a week. Currently, however, stress testing can be applied to various processes at all levels of management and decision-making [1]. Beyond the financial environment, stress testing is actively applied, for example, to determine code resilience to unplanned exceeding of input parameters in the software industry. A distinction is made between stress testing and load testing, which means exceeding the flow of normal parameters [2]. Stress testing is actively applied in medicine to detect lesions of arteries and blood vessels [3], in the gas industry for pipeline testing [4], and in quality control of radio electronic equipment [5].

In the given paper, stress testing is applied to a scientific journal. The problem statement for stress testing may be as follows: what happens if all members of the editorial board refuse to cooperate, or if no articles are submitted to the editorial board in six months, or if all authors withdraw articles from the ready-made layout of the forthcoming issue of the journal.

It should be noted that for some systems overestimated parameters can be given explicitly. For example, increased pressure to a gas line or high voltage to the input of radio electronic equipment. In systems where overestimated parameters are hard to preset explicitly, for example, in the financial environment, stress testing is carried out using the Monte Carlo statistical method [6]. It means that according to the results of stress testing a probabilistic characteristic of a particular parameter to impact system functioning is determined [6].

For a scientific journal, the application of stress testing allows to estimate a degree by which a certain risk impacts stable functioning of the journal and, most importantly, the time it would take to offset the exceeded input parameters and develop possible response procedures.

Usually, stress testing is a short-term phenomenon, but it has implications for a work process or even the vital activity of the entire organisation. In order to counter the consequences of stress testing, it is necessary to assess the probability of the negative scenario and to draw up an action plan and procedure. As shown in [7], some events related to the activities of a scientific journal can be foreseen (e.g. surges in the number of submitted articles). However, most risks have to be managed post factum.

Stress testing and implementation of possible scenarios in the scientific journal allows to anticipate possible ways of reacting to them and to implement response procedures. Additionally, the existence and development of such procedures can have a positive impact on the improvement of the journal. Planning for the risk in advance allows to adjust the editorial policy, assess and factor in the negative impact and thereby make the journal resilient to external influences.

The evaluation of statistical processes of a scientific journal's editorial board implemented in [7] allows for simulation modelling of any processes. For the given purpose, it is possible to use automated simulation systems for business processes and queueing systems, as well as conventional digital spreadsheets.

The tools presented in the article can be used to model both real-world situations and hypothetically impossible ones. Hypothetically impossible situations include those when, for example, all reviewers refuse to cooperate with the journal. Based on the data from [8], the time for selecting a reviewer can be identified and the entire time of editorial board replacement can be modelled. Similarly, the process of withdrawal of all articles from the journal by their authors can be modelled. Based on the data from [7], it is possible to calculate the predicted number of articles, the time of their review, processing of comments, literary editing and other editorial processes and to model the entire publication process of a new issue of the journal.

The purpose of the paper is to investigate the impact of stress testing of a scientific journal on its steady performance and to determine its resilience to significant changes in input parameters.

The hypothesis of the study is that publishing risks can be assessed and modelled, after which response procedures can be developed based on the obtained results to eliminate or minimise their negative consequences.

Risk management of a scientific journal

Each issue of a scientific journal has a deadline, a cost estimate and a team of reviewers and authors, as well as its management represented by the editorial board. Thus, a journal issue can be considered from a project management standpoint.

An important part of project management is risk management, which allows to reduce the negative consequences in case of risk occurrence and, therefore, to produce a journal as a project system more resilient to unplanned input parameters [9–11]. When applying project management to a scientific journal, it can be argued that there is uncertainty and incomplete information in its activities. For example, the exact number of articles to be submitted by a certain deadline is hard to predict as well as whether the given number of articles shall meet the future publication plan, or the number of reviewers to respond to an article on time. Where there are uncertainties, there are risks. A risk is an uncertain event or condition, the occurrence of which may have a negative or positive impact on a scientific journal. The risk management process can be outlined as in Fig. 1.

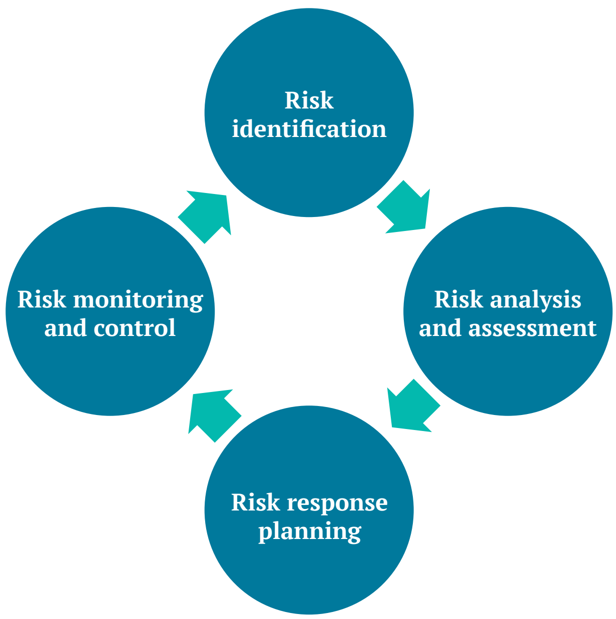

Fig. 1*. Schematic process of the risks management*

As Fig. 1 shows, the risk management process is cyclical, however, it always starts from the top circle of risk identification, i.e. the possible occurrence of unanticipated events associated with the uncertainty of information or input data. The next step is to analyse and assess the impact of risks on the project and to rank the risks. The next step means that a response procedure is drawn up for each ranked risk in case it occurs. The final stage is the monitoring and checking of emerging or unrealised risks due to the procedures put in place and risk ranking. This is not the end of the process, as new risks may arise or existing risks may develop, and the process is repeated again.

In project management, the main ways of risk management come down to four response strategies [9–11]:

1. Avoidance is eliminating risks altogether or eliminating the consequences of risks entirely.

2. Minimisation is reducing the probability of risk or reducing the severity of its consequences.

3. Delegating is placing responsibility for the risk and its consequences on another (i.e. third) party.

4. Acceptance is a conscious failure to act on the risk before it occurs.

Given the four ways of risk response, let us consider the possible risks of a scientific journal and ways of possible elimination of their negative impact. Table 1 summarises the risks experienced by the editorial team of the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation[1].

One of the risks shall be further investigated, namely, *submission of a large number of articles per unit of time*, as it is most typical for the stress testing of a scientific journal. The following reasoning allows to simulate the occurrence of any risk event and assess its consequences for the activities of the journal as well as to develop a response procedure to offset or reduce its impact.

It should also be noted that although the risk selected for the analysis has a negative impact on the parameters of a scientific journal, it is generally a positive phenomenon, since the editorial board reviews and publishes the articles more quickly once the given risk is eliminated. In other words, a secondary, yet important, goal is to increase the probability of occurrence and/or enhance the impact of positive risks [11].

Stress testing of the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation

Fig. 1 shows the number of articles submitted to the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation over the final four months of the past three years.

As can be seen in Fig. 1, there has been an increase in the number of articles in November for several consecutive years, particularly pronounced in 2018, caused by the schedule of scientific and technical conferences held at "Almaz – Antey" Air and Space Defence Corporation. The average article review time in days by month is shown in Fig. 2.

[1] URL: http://journal.almaz-antey.ru/

Table 1

Risks of the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation

Risk	Risk response	Action plan	Action driver
Delayed technical work by contractor	Delegate	Contract termination with the contractor and the procedure for signing an urgent contract with another contractor	Exceeding the maximum time limits of publishing processes on typographic layout of articles
Refusal to publish	Accept	3Replace with a different article by other authors	Article withdrawn by an author (to forward to a different journal or to improve it)
Refusal of the editorial board to publish after review	Accept	Replace with a different article	Article retraction, author exposed of plagiarism after the article has been approved for publication
Pandemic	Accept	Preliminary activity on accumulating a pool of texts	Force majeure
The publication re-registered on the HAC List or when obtaining a media certificate	Minimise	Release the journal issues in advance in accordance with the effective certificate or HAC List	Major delay (over three months) in the re-registration procedures and media certificate completion
Submission of a large number of articles per unit of time	Minimise	Expand the editorial team or manuscript reviewing experts	Maximum number of submitted articled considerably exceeding the average value
Submission of a small number of articles per unit of time	Avoid	Compile and execute the marketing policy of the scientific journal	Lack of submitted articles over a period of time (week, month)
Loss of a subject-matter reviewer	Minimise	Diversifying the areas of knowledge and constant search for new reviewers	A reviewer quits the project

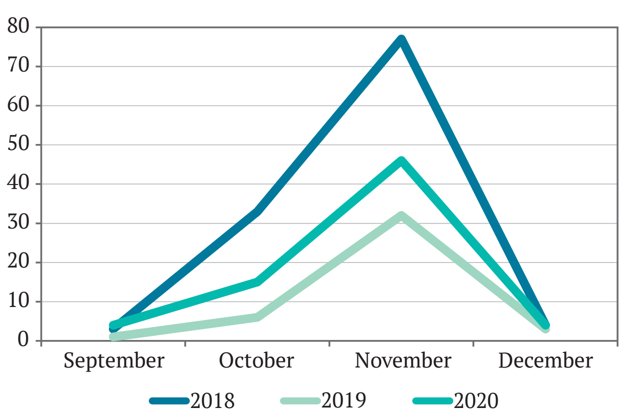

Fig. 2. *Number of articles submitted to the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation*

As can be demonstrated by comparing the graphs in Fig. 2 and 3, a sharp increase in articles in November 2018 led to a nearly fourfold increase in the average review time (from 40 days to 180 days). However, no later than in 2020, the review time was almost unchanged as compared with the average for the entire 2020 and amounted to less than 16 days. This risk was mitigated in several stages by means of expansion of the editorial board (see Table 2), including involvement of young scientists [8], early initiation of manuscripts and their processing.

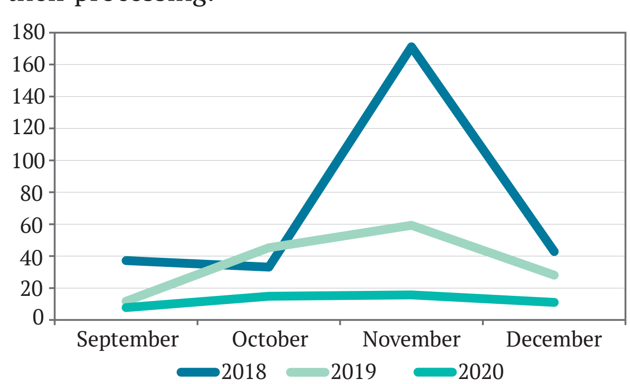

Fig. 3. *Average time of reviewing articles in the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation, days*

Table 2

Number of reviewers in the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation by year

Section	Number of reviewers in the corresponding year		
	2018	2019	2020
Electronics. Radio Engineering	31	50	50
Space Research and Rocket Science	24	26	29
Informatics	13	15	16
Organization and Management	6	7	7
Mechanics	4	5	5

As data in Table 2 demonstrate, there has been a noticeable increase in the number of reviewers since 2018 in the specific field-oriented section of the journal: Electronics and Radio Engineering, which acted as a key factor in lowering the average review time for articles in 2019 and 2020 [8].

Stress testing conducted in November 2018 revealed several vulnerabilities in the editorial board of the scientific journal: insufficiently staffed editorial team, long average review time and, as a result of the first two, insufficient load of journal articles per a reviewer.

It is worth noting that the problems listed above have been solved in two years, as can be seen in Fig. 2, where the average time at peak loads in 2020 does not exceed the average time for the regular load.

However, it is expedient to develop a simulation mathematical model to derive the system's response to overload in order to assess the impact of a larger excess of input parameters. It shall allow to assess the response time and the ability of the editorial board to handle a significant change in the input parameters. For example, what would happen if the editorial board received 100 or 500 articles within a short period of time?

Simulation model of scientific journal stress testing

If all the statistical parameters of the input stream and all system properties are known, the queueing theory can be used for modelling [12]. The queueing theory studies the input streams and their processing with the use of the probability theory and mathematical statistics.

The foundation of the queueing theory was developed by the Danish scientist Agner Erlang in order to arrange telephone exchange early last century [13]. Erlang conducted research on the quality of service depending on the number of telephone sets in use. For the task under study, there was an input stream of events, i.e. the number of subscribers at a particular unit of time who needed to contact other subscribers through the telephone exchange. The given stream was distributed among the operators, who were servicing the subscribers over a certain amount of time.

Obviously, the stream of input events and the servicing of these events are subject to the laws of probability. For example, the time between requests can be distributed according to the exponential or normal law. In the first case, the probability of arrival of the next request after the received request is very high in the initial time intervals (minutes, hours, days). In case of the normal law, the time of arrival of the next order has some average value (in minutes, hours, days), above and below which the probability of arrival of the next order is the highest.

However, for stress testing, the provisions of queueing theory may not be sufficiently correct. It applies to the input stream of articles and the possibility of approximating it by probability distributions. Thus, Fig. 4 shows the actual submission of articles to the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation from 2013 to 2020 and its approximation by a Poisson flow (both hypotheses regarding the indicative distribution of articles submission time and regarding the Poisson distribution of articles have been tested and converge at a significance level of 0.05). If the flow of articles obeys the Poisson law, the probability of the next article submission in a week is 50 %, and after three weeks an article shall be submitted with the 90 % probability. The probability of the event that no articles arrive in three months is less than 0.01 % (one case out of 10,000). The total number of articles per month averages 3.26.

As Fig. 4 shows, the Poisson flow approximates the lower part of the graph well and does not account for outliers. In the case of the Poisson flow, we can consider the incoming articles without outliers in Fig. 4 from the queueing system perspective. However, the Poisson process in Fig. 4 covers less than half of all requests in the system (310 out of 686). The probability distribution from Fig. 4 for the actual inflow of articles with outliers could not be obtained, so a simulation model [14] based on the Monte Carlo method [6, 15] was implemented.

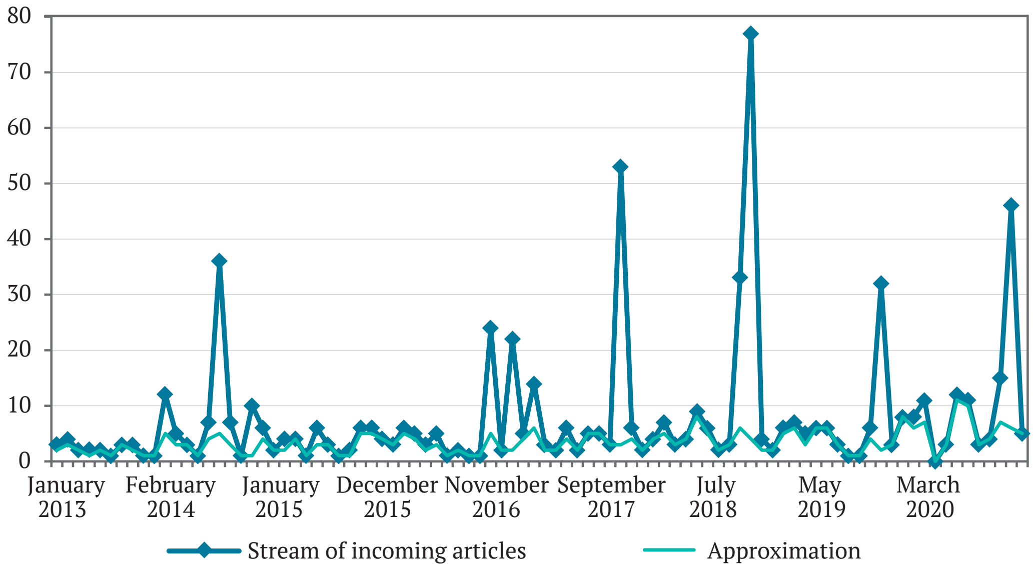

Fig. 4*. Distribution of the inflow of articles and its approximation by Poisson flow*

The simulation modelling shows the results of a large input stream of articles passing through the editorial office within a small unit of time (all received on the same day), i.e. it estimates the article processing time by a reviewer and then adds up the results by reviewer.

Currently, the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation has 107 reviewers. The paper [7] demonstrates that frequency distribution of response time obeys the exponential law $\lambda \cdot \exp(-\lambda x)$ with parameter $\lambda = (9.965)^{-1}$ for all reviewers of the journal. It means that 75 % of reviewers submit the review of an article to the editorial board within 14 days upon receiving the manuscript, and the probability of receiving a review later than in 46 days amounts to 1 % (one case out of a hundred).

Each article submitted to a reviewer is processed within a time frame that is randomly distributed according to the exponential law. If the next paper comes to the same reviewer, it is reviewed again over time randomly distributed according to the exponential law with parameter $\lambda = (9.965)^{-1}$, as shown in Fig. 5. In the model, the break time between articles is assumed to be zero.

As Fig. 5 shows, if there are only two reviewers in the editorial board and the time is always subject to the exponential distribution law with parameter $\lambda = 9{,}965^{-1}$ (hereinafter rounded to 10^{-1}), then the processing time of two articles is determined by the maximum value of review time by two reviewers max (t_{rev1}, t_{rev2}). As can be seen from the data in Fig. 5, it is the time of articles processing by reviewer No. 1 and it equals 5 + 12 = 17 days.

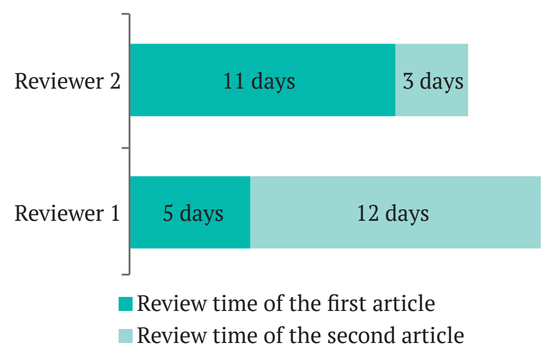

Fig. 5*. Review modelling*

As noted above, there are 107 reviewers in the journal. Usually, an article is sent for review to two reviewers [16], therefore, for simplicity of calculation, we assume that 50 submitted articles give a full load of work to 100 reviewers (full load) and out of 100 submitted articles, 50 articles give a full load of work to reviewers and the remaining 50 articles stand in waiting to be processed. With an inflow of 500 articles, we are interested in the processing time by each reviewer for a consecutive flow of 10 articles. The topics of the incoming articles are not considered.

Modelling is carried out by generating random numbers following the exponential distribution law and by their summation according to the rule demonstrated in Fig. 5. The maximum number was selected as the total processing time of all articles by all reviewers from the total number of generated numbers. The maximum time was further averaged over the number of runs. The number of model runs was estimated using the well-known formula for estimating the mathematical expectation as a fraction of the standard deviation [12, 15, 17]:

$$n = \left(\frac{z_{1-\alpha/2}}{d_m} \right)^2, \quad (1)$$

where $z_{1-\alpha/2}$ – the quantile of the standard normal distribution; $\alpha = 1 - P$ – the significance level, where P – the confidence level; d_m – the maximum error (tolerance) in estimating the mathematical expectation in fractions of the standard deviation.

The results of calculating parameters by formula (1) at significance level of $\alpha = 0.05$ are shown in Table 3.

Table 3

Maximum tolerance value at estimated mathematical expectation and calculated values for the number of model runs

Parameter	Value		
Maximum error (tolerance) in estimating the mathematical expectation in fractions of root mean square error d_m, %	10	5	1
Calculated *n value*	196	784	19 599
n value used for modelling	200	1 000	20 000

The modelling results for the parameters from Table 3 at $\lambda = 10^{-1}$ and the number of articles equal to 50 are clearly shown in Fig. 6.

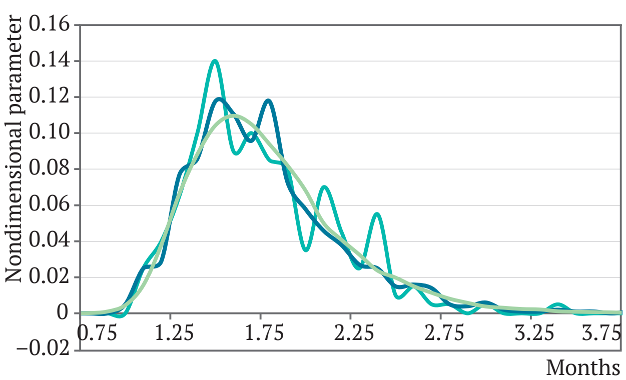

Fig. 6. *Normalised distributions of review time with parameter λ = 10⁻¹ for 200, 1000 and 20,000 model runs*

As Fig. 6 shows, 200 trials generally give a satisfactory distribution of the parameter estimate for the mathematical expectation of the average processing time of the inflow of articles, the maximum value of 20,000 runs is used in the subsequent modelling, which gives the smoothest distribution of the parameter. Fig. 6 also demonstrates that the processing time of 50 articles is unevenly distributed over the months, therefore providing the basis for discussing the probabilistic nature of the processing time. For example, the probability of the processing time of 50 submitted articles to be less than one month is 0.6 %, less than two months is 78 % and more than three months is 1.5 %. However, for simplicity of consideration and discussion, only the average value is considered, which is close to the maximum on the unimodal curve in Fig. 6.

Modelling results

Modelling was carried out in Microsoft Excel spreadsheet software. The results of modelling the time of incoming articles processing for three values of the number of articles and five values of the intensity of article processing by the editorial board are given in Table 4.

The following conclusions can be drawn from the data in Table 4:

1. 77 articles submitted in November 2018 proved to be a genuine stress test for the scientific journal, as their average processing time was 5.9 months, double the average maximum time of 2.5 months for 100 submitted articles in the simulation.

2. 46 articles submitted in 2020 were processed in 0.5 month. This value is three times smaller than the maximum processing time of 1.7 months for 50 articles, indicating that the consequences of the 2020 stress test have been successfully overcome by the editorial board of the journal.

3. If the journal receives 500 articles, they will all be processed in 7 months with the current reviewer processing intensity.

Table 4

Results of modelling of the maximum average processing time for articles submitted to the editorial office with 20,000 runs and submission for review by two reviewers, months

λ	Number of articles, pcs		
	50	100	500
4^{-1}	0.7	1.0	2.7
7^{-1}	1.2	1.7	4.6
10^{-1}	1.7	2.5	6.7
15^{-1}	2.6	3.7	9.9
20^{-1}	3.5	4.9	13.2

It is of interest to calculate the maximum average review time for all articles by month of their submission to the journal. Fig. 7 shows the modelling data.

Fig. 7 does not show the modelling data on the average value of processing of all articles, which gives an obvious result of 10 days, in line with the theoretical result for queueing systems [17]. The same result agrees with the average value for all reviewers reported in [7]. The minimum time modelling provides an obvious result close to zero as well.

It is worth noting that in the case where the doubled number of papers does not exceed the number of reviewers, the average application retention time in the system is in agreement with the theoretical time for a queueing system $t_{avr} = 1/\lambda$ (≈10 days) [17]. In other words, if the doubled volume of articles does not exceed the capacity of the system, it is possible to apply the provisions of the queueing theory instead of the simulation model.

But the task of the simulation modelling was to determine not the average but the maximum time for benchmarking, and whether the input stream is stress testing for the scientific journal, which was demonstrated in Table 4 when the average processing time of the input stream was more than double the maximum.

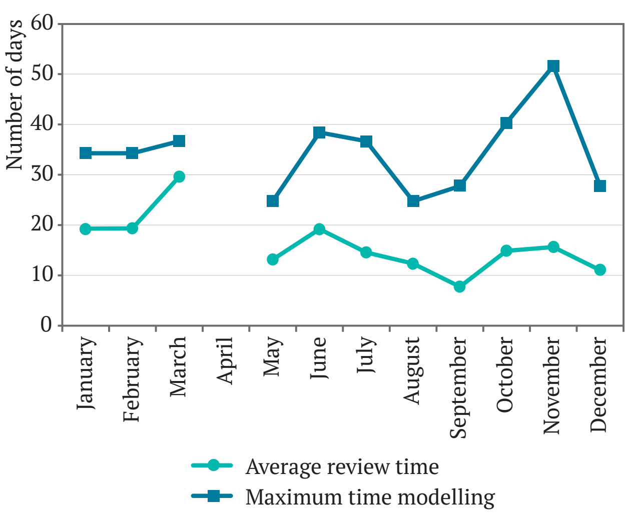

Fig. 7. *Data on modelling of the average maximum article review time and actual average article review time by month for 2020 (April excluded due to pandemic)*

Fig. 7 also leads to an important conclusion: the editorial board of the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation did not exceed the maximum average time for reviewing articles in 2020. Beyond that, the time of processing by reviewers is close to 10 days after the coronavirus pandemic, agreeing with the average time of article processing and with the results obtained according to the queueing theory.

Based on the data in Fig. 7, it is of interest to know the maximum time of article review as a function of their number and average review time. Fig. 8 shows the modelling data, with the number of articles provided on the X axis and the maximum modelled time of their processing represented on the Y axis, as well as the approximation polynomials of the second degree.

The analysis of Fig. 8 leads to the obvious conclusion: the longer the average processing time of articles in the journal and the more articles submitted, the longer the maximum average review time. The coefficients of the approximation polynomials and consideration of only the linear component of the curves in Fig. 8 allowed us to find the dependence of the maximum average time on the number of articles and the average review time in the form

$$T(n, \lambda) = \frac{1,5n + 4}{100\lambda}, \qquad (2)$$

where $T(n, \lambda)$ – the maximum average processing time of articles (in months), n – the number of articles, $1/\lambda$ – the average review time in the journal (days).

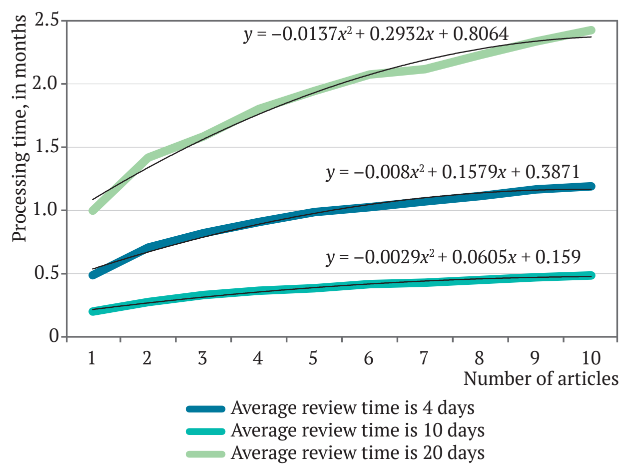

Fig. 8. *Data on modelling of the average maximum time for reviewing articles as a function of the number of articles*

Formula (2) can be used by editorial boards of scientific journals to tentatively estimate the maximum average review time as a function of the number of articles and the average review time without simulation modelling. For example, if

$n = 1$, $T(1, {}^{1}/_{4}) = 0.2$ months, $T(1, {}^{1}/_{10}) = 0.5$ months, $T(1, {}^{1}/_{20}) = 1{,}1$ months, which is consistent with the data in Fig. 8. The formula is derived from the simulation modelling data with an indicative law of the review time distribution with the same λ for all experts when an article is sent to be reviewed by two experts.

Relation between the modelled and actual processes

Searching for the relation between actual and modelled processes yielded the following results, given in Table 5.

Table 5

Correlations found between the values, %

Review time	Number of articles	Average review time
Average time	16	–
Maximum time modelling	91	39
Average time modelling	27	46

Several conclusions can be drawn from the data provided in Table 5.

1. The correlation between the maximum time and the number of articles is 91 %, which is obvious, as the modelling relies on the data regarding the number of articles.

2. The correlation between the modelling data of the maximum review time and the actual average time of article review is 39 %, indicating a weak correlation between the data. It indicates that the actual average review time is poorly related to the modelling data. The result could be caused by the fact that modelling data fail to consider the topics of articles and their actual review time due to the scope of material and unrelated workload of a reviewer.

3. The correlation between the actual number of articles and the actual average review time is 16 %, which characterizes the correlation as very weak. This result can be interpreted as a confirmation of the hypothesis from the previous item. The actual average time and the actual number of articles are weakly correlated, as the number of articles and the average review time fail to consider the topics of articles and unrelated workload of a reviewer.

Conclusion

Expansion of the editorial board and initiating articles in advance allowed the editorial board of the scientific and technical Journal of "Almaz – Antey" Air and Space Defence Corporation to overcome the forecast stress testing in November 2020. It was made possible by managing the risks of the scientific journal and drawing up a response procedure to eliminate the future risk.

Additionally, the study demonstrated that the average processing time in the case of an average inflow of articles for an editorial board is the same as the average time of reviewer's response to the submitted article, and this is the time to aim for. The study also revealed the maximum article processing time that should not be exceeded by the editorial board of a scientific journal.

REFERENCES

1. Siddique A., Hasan I. Stress Testing: Approaches, Methods and Applications. London: Incisive Media; 2013. 457 p.

2. Crispin L., Gregory J. Agile Testing: A Practical Guide for Testers and Agile Teams. Moscow: Williams; 2010. 464 p. (In Russ.)

3. Dyuzheva E. N., Vasil'eva E. Yu., Shpektor A. V. Dynamics of Q-T variance during the stress test as an indicator of stenotic damage of the coronary arteries. *Creative Cardiology*. 2010;(2):80–87. (In Russ.)

4. Filatov A. A., Kalinin N. A., Ponomarev V. M., Dubinskii V. G. Study on hydrodynamics of gas test method "stress test". *Gazovaya promyshlennost = Gas Industry*. 2011;(9):51–55. (In Russ.)

5. Kuznetsov P. L., Muraviev V. V. The quality control of electrolytic tantalum capacitors by using the stress test. *Devices and Methods of Measurements*. 2015;(1):76–80. (In Russ.) DOI: 10.21122/2220-9506-2015-6-1-12-122

6. Kenton W. Stress Testing. Investopedia. May 2020. Available at: https://www.investopedia.com/terms/s/stresstesting.asp

7. Bolshakov D. Yu. Analytics in the publication of a scientific journal. *Science Editor and Publisher*. 2020;5(2):102–112. DOI: 10.24069/2542-0267-2020-2-102-112

8. Bolshakov D. Yu. Experience of involving young researchers in reviewing manuscripts submitted to a scientific journal. *Science Editor and Publisher*. 2020;5(1):16–21. DOI: 10.24069/2542-0267-2020-1-16-21

9. Larson E. W., Gray C. F. Project Management: The Managerial Process (McGraw-Hill Series Operations and Decision Sciences). 7th ed. McGraw-Hill Education; 2017. 688 p.

10. A Guide to the Project Management Body of Knowledge (PMBOK Guide) 6th ed. Project Management Institute; 2017. 756 p. Available at: https://book.akij.net/eBooks/2018/March/5abcc35b666f7/a%20guide%20to%20the%20project%20management%20body%20of%20knowledge%206e.pdf

11. Polkovnikov A., Dubovik M. Project management. MBA full course. Moscow: Olympus-Business; 2017. 552 p. (In Russ.)

12. Gmurman V. E. Probability Theory and Mathematical Statistics. 9th ed. Moscow: Vysshaya shkola; 2003. 479 p. (In Russ.) Available at: http://lib.maupfib.kg/wp-content/uploads/2015/12/Teoria_veroatnosty_mat_stat.pdf

13. Erlang A. K. Sandsynlighedsregning og Telefonsamtaler. *Nyt Tidsskrift for Matematik.* 1909;20(B):33–39. Available at: https://www.jstor.org/stable/24528622

14. Scandizzo S. Stress Testing Models. In: The Validation of Risk Models. Applied Quantitative Finance series. London: Palgrave Macmillan; 2016. DOI: 10.1057/9781137436962_14

15. Pugachev V. S. Probability Theory and Mathematical Statistics. 2th ed. Moscow: Fizmatlit; 2002. 496 p. (In Russ.)

16. Bolshakov D. Yu. Review process revisited. *Journal of "Almaz – Antey" Air and Space Defence Corporation*. 2019;3(30):4–6. (In Russ.) Available at: http://journal.almaz-antey.ru/jour/article/viewFile/134/94

17. Ventcel E. S. Operations research: tasks, principles, methodology. 2nd ed. Moscow: Nauka; 1988. 208 p. (In Russ.) Available at: https://systems-analysis.ru/assets/operation-research_venttsel.pdf

INFORMATION ABOUT THE AUTHOR

Denis Yu. Bolshakov, Cand. Sci. (Eng.), Head of the Department of Scientific and Technical Issues and Special Projects of the Office of the Director General, "Almaz – Antey" Air and Space Defence Corporation, JSC, Deputy Editor-in-Chief of the *Journal of "Almaz – Antey" Air and Space Defence Corporation*, Moscow, Russian Federation; ORCID: https://orcid.org/0000-0001-7694-1454; press@almaz-antey.ru.

ИНФОРМАЦИЯ ОБ АВТОРЕ

Большаков Денис Юрьевич, кандидат технических наук, начальник отдела научно-технических изданий и специальных проектов аппарата генерального директора, АО «Концерн воздушно-космической обороны "Алмаз – Антей"», заместитель главного редактора научно-технического журнала «Вестник Концерна ВКО "Алмаз – Антей"», г. Москва, Российская Федерация; ORCID: https://orcid.org/0000-0001-7694-1454; press@almaz-antey.ru.

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