

# INNOVATION IN THE ADOPTION OF THE ELECTRONIC JUDICIAL PROCESS – EJP

Submission: 14/05/2018

Accept: 27/09/2018

Jomar Nascimento Neves<sup>1</sup>  
Emílio José Montero Arruda Filho<sup>2</sup>

## ABSTRACT

This article analyzes a case study of technological innovation with the use of the Electronic Judicial Process - EJP, occurred in the 8th Regional Labor Court, in the 8th Brazilian Judicial District, in Belém, capital of the state of Pará (PA). The research adopted a qualitative and exploratory approach, carrying out interviews with users and actors who maintain the innovation process. The conclusions reflect, evaluate and describe the path of acceptance, adoption, and diffusion of the Electronic Judicial Process, following the stages developed by Roger's theory regarding the process of innovation's diffusion and adoption. The study identified that users are loyal to the EJP and they do not show any intention of replacing it, for example, with the tool that was in place before the EJP use. In addition, the study reveals the perception of the importance and superiority of the platform, adding more value to the innovative process, even observing that there were difficulties at the beginning of the adoption. The research showed that users perceived a reduction in the working time, which contributed for each individual become a potential actor in the process of adoption and diffusion of the innovation proposed within the Labor Court of Belém.

**Keywords:** Electronic Judicial Process; Diffusion of innovation; Values Perception; Perceived Usefulness.

---

1 Faculty of Belém – FABEL. Belém - Pará – Brazil, graduated in Economics from the Center for Higher Studies of the State of Pará (1982), graduated in Law from the University of Amazon – UNAMA (2000) and graduated in Administration from the Union of Higher Schools of Pará (1990). Coordinated the Bachelor's course in Administration at the Faculty of Belém and he is currently professor at the sale faculty. Master's degree from the Business Administration Graduate Program at the University of the Amazon - UNAMA (2017).  
E-mail: admjomar@fabelnet.com.br. ORCID: 0000-0002-7031-8765

2 Universidade da Amazônia – UNAMA e Universidade FUMEC, Belém – PA, Brasil; Belo Horizonte – MG, Brasil, was awarded his PhD in Marketing and E-commerce from the University of Bergamo, Italy in March 2009. In 2007 and 2008, he was a Visiting Researcher at the University of Rhode Island – USA, and in 2014 he concluded the post-doctoral at the Getúlio Vargas Foundation in São Paulo, Brazil. Currently he is an Associate Marketing Professor at the University of Amazon (UNAMA) in Belém and at the FUMEC University in Belo Horizonte, both in Brazil. E-mail: emilio.arruda@unama.br / emilio.arruda@fumec.br. ORCID: 0000-0002-1574-8332

## RESUMO

*Este artigo propôs analisar o caso de inovação tecnológica com o uso do Processo Judicial Eletrônico – PJE, ocorrido no Tribunal Regional do Trabalho 8ª Região, precisamente na 8ª Vara do Trabalho em Belém - PA. O estudo proposto foi desenvolvido por meio de uma pesquisa de natureza qualitativa, exploratória e por meio de entrevistas dos usuários e mantenedores do processo. Este trabalho está baseado em um estudo de caso, cujas conclusões buscaram refletir, avaliar e descrever a trajetória da aceitação, adoção e difusão do Processo Judicial Eletrônico, seguindo as etapas do processo de difusão e de adoção da inovação desenvolvido pela teoria de Rogers. O estudo identificou uma fidelização da plataforma PJE no seu uso por parte dos usuários, sem intenção de substituí-la, como por exemplo, pela ferramenta que a antecedeu. Além disto, é identificado a percepção com a importância e superioridade que a plataforma possui, agregando mais valor ao processo inovador, mesmo diante de dificuldades iniciais na utilização, propondo ainda uma percepção da redução do tempo de trabalho, tornando cada indivíduo um ator potencial para adoção e difusão da inovação proposta pelo Fórum da Justiça do Trabalho de Belém.*

**Palavras-chave:** Processo Judicial Eletrônico; Difusão da inovação; Percepção de Valores; Utilidade Percebida.

## 1 INTRODUCTION

The current markets are increasingly complex, unpredictable and competitive. This context demands that organizations adapt to dynamic realities. Public and private sector organizations need to use technology to improve and promote their products and services. Neglecting this context affects the entire society, causing the misuse of productive resources (KLEIN, 2017). Perez and Zwicker (2010 apud LUNARDI; BECKER; MAÇADA, 2003) say that some sectors have invested significant amounts in information systems (IS) and information technology (IT) as a way of coping with the needs of the organizations.

The quest for the ‘ideal productivity’ considers quality and innovative processes. This global scenario leaves with low efficiency those at the margin of this process of change, leading to severe damage to the quality and inadequate resource allocation, compromising productivity (JORGE; CARDOSO; GODINHO, 2015).

Thus, it is crucial to highlight that innovation is a compelling alternative for organizations that seek to respond to the demands of today’s technological, competitive, and dynamic information systems, introduced continuously in all areas, including judiciary (TEIXEIRA; RÊGO, 2017). Systems that are backed by technology have become significant components in almost everything that organizations do and verifying the benefits of investing in technology is an increasingly important aspect of the process of adoption and diffusion of these systems.

Thus, the market that adopts this innovation brings a new quality to the product (SCHUMPETER, 1982), bringing the possibility for new markets and organizations. Larsen and McGuire (1998) corroborate that the use of modern information systems are increasingly decentralized and has led the different working groups to collaborate toward a common goal, which would be hard to achieve with concentrated systems. In this context, the use of technological communication resources has increased exponentially, and the speed of data transmission and information, expand the group of people that can rapidly interact around social demands (OH; OZKAYA; LAROSE, 2014; BOYLE; O’SULLIVAN, 2016).

In the case of the electronic justice, it is possible to see a significant evolution in the adoption of information systems in the last decade (ZAMUR FILHO, 2011; JORGE; CARDOSO; GODINHO, 2015). There are communication and access to the judicial processes systems, which optimize and expand the services, as well as turn offices such as the Regional Labor Court (TRT), more operational (SARDETO; BUENO, 2013).

Studer (2007) and Di Blasi (2002) show that information technology is the association of software and hardware systems used in the registry, in which these systems start to process and organize the transmission of all types of information. With this, information technology enables speed in the processing of information, automation of procedures, and the expansion of borders, in such a way that physical distances become irrelevant due to the online possibilities.

Therefore, this research addresses the Electronic Judicial Process (EJP) as part of the situational analysis of the local context, which is based on the adoption and diffusion of the technological innovation in place in the 8<sup>th</sup> Regional Labor Courts, particularly at the 8<sup>th</sup> Brazilian Judicial District of the city of Belém, in the State of Pará (PA). This perspective allows measuring the influence of the adoption and diffusion of the innovation in the courts, regarding the improvement in the effectiveness in serving the people, and the speed in carrying out the judicial processes. Thus, this research's guiding question is around how users accept or reject the electronic judicial process, considering its adoption stages. It is worth observing that after becoming aware of the innovation and understanding how it works and pros and cons, it is easier to decide whether to accept it or not. Also, when the users understand, have the chance to experiment with the innovation, and master the difficulties of the system, they are more likely to adopt it (KOZINETS, 2008).

Therefore, the research seeks to define the process that allows assessing the factors influencing the adoption and diffusion of the use of the Electronic Judicial Process (EJP) – which represent an innovation – at the 8<sup>th</sup> Regional Labor Court, particularly the 8<sup>th</sup> Judicial District in the city of Belém (PA). The study focused on investigating cases of rejection or acceptance of the innovation within the 8<sup>th</sup> Judicial District in Belém (PA). We applied semi-structured and qualitative interviews with judges, higher court judges, secretaries of legal processes, lawyers, directors of the judicial secretary, and civil servants, looking at the factors that influenced the interviewees to use the technological innovation, and describing the results based on qualitative data on the implementation of the innovation. Also, the study evaluated the degree of complexity found by users.

The findings obtained through this work help to understand the adoption of innovations in the legal processes, from the users of the technology. This research can also help to improve the EJP in the future.

## 2 LITERATURE REVIEW

The Internet has made possible the creation of many tools allowing innovations, for example, in social interaction. These innovations have been developed and applied to the various segments of the corporate world, expanding markets and introducing new needs and desires in society, contributing to effectiveness, efficiency, and efficacy in organizational processes, be they products or services (OH; OZKAYA; LAROSE, 2014). However, the speed of the changes is not immediately reflected in the quality of the outcomes.

The evolution of technology becomes more and more frequent and present in the public sphere, where complex tasks are performed to serve communities, who are active players in the processes. Castells (2002) says that this information society is structured in information technology, organizing itself in networks to process information. In this process, acceptance may be more time-consuming if it does not have the appropriate tools to facilitate or speed up the execution of tasks in the organizational environment, considering the service demanded every day.

Machado and Nunes (2003, p.18) argue that this level of influence of the technology “depends strongly on the current legal culture, as well as on the possible legal framework for the use of these same tools, whether in the use of so-called scientific evidence or the use of new information and communication technologies.” For the authors, the organizational culture is one

of the barriers for the implementation of new processes, which rely on the particularities of the adoption, diffusion, and acceptance of new technologies.

Innovation must have a social foundation and cannot be conceived only as a process of generating new products for market competition (KLEIN, 2017). In a public agency, where the goal is not the selling of a product but the care and well-being of the population, the social nature of innovation is highlighted, since the aim of the players in this context is to solve problems that affect society. Thus, innovation is originated because of a need of a particular public for change (SARDETO; BUENO, 2013). Therefore, creation, invention, or innovation lead to changes, but they must be encouraged to achieve a development level that guarantees acceptance, adoption, and diffusion by social agents.

Over the last few decades, the speed of technological change has been outstanding, and the adaptation to this new world requires attention regarding the quality of the products and services made available to society (TEIXEIRA; RÊGO, 2017). The innovation and diffusion of technology, mainly, result in changes that directly affect the type of relationship between the individuals of a society.

These advances accelerate and provide efficiency to work activities. The use of innovative tools imposed by technological advances, is part of the process of democratization of information, broadly seeking to include individuals who are strategic when it comes to solving issues under discussion in court cases, as well as offering assistance in the role of civil servants and lawyers who work autonomously (KLEIN, 2017).

According to Rogers (2003), the development of innovation is a process that begins before the conception of the concrete idea of a new product or process. Its development begins with the recognition of a problem or necessity and finishes with the outcomes of the innovation implemented. However, not every innovation goes through the stages in the same order or passes all phases. Thus, the adoption and diffusion of the innovation represented by the EJP show that each phase of the judicial process will offer an approach for the acceptance of the information, which will give agility in the resolution of the legal processes. The result will be a significant reduction in the number of offline processes, and more agility in the integration of the process.

Innovation is understood as something new, modern, often managed within a scientific framework surrounded by complex high-tech business processes. It can be configured in several ways and understood as “an idea, practice or object that is perceived as new by an individual or another adoption unit” (ROGERS, 2003, p.12). Schumpeter (1978) clarifies that innovation can be a new product, a new utility, opening new markets, or differentiation in a process. Based on the concepts coined by these authors, therefore, a governance practice can also be considered an innovation.

The speed with which an innovation is adopted does not depend on the specific utility (known as objective utility) and does not depend on the perception of the social agents about this new idea or product. It depends, however, on the chance of experimentation. Rogers (2003) identifies five factors that shape the adopters’ feelings about innovation: relative advantage, compatibility, complexity, trialability, and observability.

It is critical, therefore, to understand and evaluate all innovation stages discussed by Rogers, when studying the case of the Electronic Judicial Process (EJP). Such analysis will allow verifying the applicability of Roger’s theory of adoption and diffusion as a principle, regardless of the field of action.

Thinking about change and information technology automatically brings reflections about the innovative process and how it is consolidated in organizations and society. Sreenon-chai et al. (2017) describe the theory of the diffusion of innovation, currently identifying the universal attributes perceived in innovation. Moore and Benbasat (1991) discussed other features that can still be perceived, such as image, voluntariness of use, visibility, and demonstration of results as elements that portray the perception of the use of innovation.

For Pennings (1998), innovation may be understood as the adoption of an idea that is considered new to the individual or the entity adopting it. Thus, new services, new products, and new technologies that produce or deliver the product or service, new procedures, and social arrangements, are included in the author's concept of innovation.

Some authors, such as Schumpeter (1982) for example, argued that innovation could take many forms, and it is not necessarily about inventing something new. For instance, one can propose a new way to implement an already existing idea or use this idea in a new situation. Therefore, the notion that not everything is new but can be transformed is in place in the discussion about innovation. The users of the innovations, however, perceive all of the kinds of innovation as differentials.

For Drucker (2004), innovation can be introduced through changes that can improve organizational performance. Innovation may not occur homogeneously, i.e., it can be introduced in different degrees or levels, from the simplest to the most complex.

In this study, we have identified several characteristics or attributes perceived in an innovation, which facilitates its adoption and diffusion in the same way as the information systems and information technology do (SEREENONCHAI et al., 2017; ROGERS, 2003; MOORE; BENBASAT, 1991). Also, the way that innovation is adopted depends directly on the attributes perceived by users, as can be observed in Table 1.

**Table 1 – Five universal attributes observed in an innovation – Rogers' theory**

<b>Attribute</b>	<b>Description</b>
<b>Relative advantage</b>	Degree to which an innovation is perceived as better than the previous solution.
<b>Compatibility</b>	Degree to which an innovation is perceived as consistent with the early adopters existing values, needs, and past experiences.
<b>Complexity</b>	Degree to which an innovation is perceived as hard to use.
<b>Observability</b>	Degree to which the organization is able to observe the result of the innovation.
<b>Trialability</b>	Degree to which an innovation can be experimented before the adoption.

Source: Moore and Benbasat (1991).

The five characteristics described in Table 1 were proposed by Moore and Benbasat (1991), who developed a general tool to be used in the evaluation of several perceptions that an individual may have about the characteristics of use of an innovation, occurring through the involvement with the process of adoption and diffusion, transforming it into a new information system.

Moore and Benbasat (1991) added three new attributes: 'image,' 'voluntariness of use,' and 'result demonstrability,' adapting the concepts of the original attributes 'complexity' and 'observability' and calling them 'ease of use' and 'visibility.'

Table 2 shows the description and the concepts related to the meaning of each variable. It is possible to identify in these variables the direct and indirect relations in the innovation context analyzed.

**Table 2. Characteristics perceived when using technological innovation.**

<b>Characteristic</b>	<b>Description</b>
<b>Ease of use</b>	Degree to which an innovation is perceived as easy to use.
<b>Image</b>	Degree to which an innovation is perceived as able to improve the individual's image or status.
<b>Voluntariness of use</b>	Degree to which the use of an innovation is perceived as voluntary or spontaneous.
<b>Visibility</b>	Degree to which innovation becomes visible for individuals or groups in an organization.
<b>Result Demonstrability</b>	Degree to which an innovation's results are tangible.

Source: Moore and Benbasat (1991).

When observing the interaction of the innovations with the environment, it is possible to say that their influence by promoting changes is not limited to the organizational context. They extrapolate the organizations and affect the whole society, usually by changing the relations of the means of production. This aspect reinforces the fact that practices are permeated by a system of social dynamics involving multifunctional teams, providing and conducting an environment in which it is possible to admit parallel, usual, or alternative procedures to the routine practices. For Azad and King (2008), these are local practices, in the sense that they are enabled by the particular context of the work environments, but that have a definite influence in the correct use and acceptance of the innovative product or process. In this way, it is essential to create an appropriate environment so that the adoption of innovation is less likely to be rejected.

Innovation acceptance involves characteristics that act as an indicator, identifying the adoption of innovation as a result of a previous assessment (considering that the use of technology is more likely to occur when there is the possibility of testing (experimentation)). In addition, changes may be perceived after using, so the attribute of observability allows the user to see the benefits of the innovation (SEREENONCHAI et al., 2017).

In this way, Rogers' innovation offers advantages in comparison to what it will replace, by describing these relativities as compatibility, trialability, and visibility, and providing a better likelihood of efficiency and effectiveness, as well as being adopted faster than other market propositions. What differentiates each adopter is the socioeconomic situation, personal values, and their behaviors (ZHU; ZHANG, 2016).

Early adopters are more empathic with innovation, less dogmatic, with no closed belief systems, with greater ability to deal with abstractions, are more rational, more intelligent, more available to change, they deal better with uncertainties, have a higher predisposition to science and technology, resulting in increasingly more possibilities of innovation. Moreover, they have higher social participation than the later adopters, and are in a stronger relationship with the innovation diffusion agents, are more exposed to the mass media, and media of interpersonal communication, always in search of information on the innovations. They are, therefore, better opinion leaders than late adopters (SEREENONCHAI et al., 2017; ROGERS, 2003).

## **2.1. Rejection and discontinuity of innovation**

In the process of innovation, users receive several messages, including an 'acceptance proposal.' When there is a vast number of negative messages, and the information does not inspire a favorable decision to adopt the innovation, a discontinuity may occur and, consequently, the decision to reject it, even though it may have been accepted at some point (YE; KANKANHALLI, 2018).

After being aware of an innovation, to understand its operation, and pros and cons, of deciding to reject or adopt it, is crucial to facilitate the decision towards the adoption. When following the steps suggested by Rogers' theory, it is possible to change opinion or attitudes regarding the innovation even before it is presented, which means that the rejection of innovation is not always a deliberate attitude. Roger (2003) classifies the rejection in:

- Active rejection: it happens when the individual considers the adoption of the innovation, experiences it, and then rejects it;
- Passive rejection: it happens when the individual never considered adopting the innovation, even if there is some empathy for adopting it.

In this context, it is necessary to measure adequately the factors that motivate or discourage the consumption of new technological products/services, to understand the scenarios and the perceptions of users that guarantee new developments (HURMERINTA; SANDBERG, 2015).

### 3 METHODOLOGY

The study analyzed the process of adoption and diffusion of the Electronic Judicial Process as an innovation in the Regional Labor Court of the 8<sup>th</sup> Judicial Region, through a case study using a qualitative and exploratory approach.

The study aimed to understand the innovation process and the variables that influence or block the acceptance of the EJP during the adoption process. This kind of research allows knowing the problem presented (THIOLLENT, 2011; RODRIGUES, 2007, p. 3), by identifying the research field, the stakeholders, and their expectations and frustrations. It establishes an initial diagnosis of the situation and is conducted to accomplish its objectives. The data was collected through semi-structured interviews, with guiding questions based on the literature presented in the previous section, particularly the studies by Rogers (2003), Moore and Benbasat (1991), Hurmerinta and Sandberg (2015) and Ye and Kankanhalli (2018). The interviewees could freely respond to all questions asked.

We conducted twenty (20) interviews with several stakeholders, collecting qualitative data. The interviews were recorded and transcribed for analysis, which was carried out using the content analysis technique. According to Bardin (2003), content analysis is the exhaustive analysis of the meanings described by interviewees about the topic researched, observing the concepts used in the study, to understand their interactions and preferences. The documents or data obtained in the interviews were analyzed in depth, through stages of pre-analysis and exploration and treatment of the data collected, which supported the interpretation of the results.

The content analysis was adopted to organize and group the data for treatment, guiding the research to understand the adoption of the innovation observed in the case study and the interpretation of the results according to the established variables, with minimum error (SMITH; SMITH, 2018).

First, we observed common elements in the interviewees' responses – the interviews were transcribed in a 60 page document – and created keywords to guide the analysis, as in Ferreira, Arruda Filho, and Lima (2014). The interviews were conducted in two phases in order to evaluate and feed the process of forming the categories. The categories were formed first by descriptive repetition, based on twelve (12) interviews. In a second phase, we conducted eight (08) interviews that allowed to complement the data and verify the adequacy of the repetition observed in the first phase (saturation). The categories were then established, leading to interpreting the interviewee's meanings based on the context under research, achieving a more significant analysis. The group of interviewees was formed by four (04) judges, three (03) higher court judges (called "*desembargadores*" in Brazilian Portuguese), three (03) secretary for legal processes, three (03) lawyers, three (03) directors of judicial secretary, and four (04) civil servants.

The main characteristics of the process of adopting the innovation were analyzed, including the barriers and catalyst elements, in order to understand the process of adopting an innovation based on the characteristics of its use, as proposed by Rogers (2003) and Moore and Benbasat (1991).

This article, as a simple case study, emphasizes one of the interviews that illustrates and helps to understand the process of innovation adoption. This interviewee was actively involved in the implementation of the EJP, which allows the analysis to capture two perspectives of the process: the point of view of this interviewee, considered as an early adopter of the technology, and the perspective of the other interviewees, who adopted the innovation afterward.

Authors such as Bogdan and Biklen (1994, p. 47-51), argue that "in the qualitative in-

investigation the researcher is closer of the interviewees' experiences, taking into consideration the several factors among them." Therefore, qualitatively analyzing the interviewees allows observing how these individuals behave when performing their activities, showing aspects of their experience with the EJP and how the process was adopted in the context of the judicial system.

Thus, it is possible to obtain variables that facilitate the codification and categorization (identifying verbal or content repetition) of the collected data regarding the process of implementation, adoption, and acceptance of the new method of operation of tasks in the work environment. The codification and categorization of the data collected also revealed how the diffusion of the EJP occurred, guiding the interpretations made during the research (TRIVIÑOS, 1987; YE; KANKANHALLI, 2018). This process was carried out manually, marking in the transcription of the interviews the keywords or parts of the content that were related to each other or referring to the same topic. This work resulted in theoretical identification codes that led to categories of users in a single context (SMITH; SMITH, 2018).

The content analysis was objective, despite the qualitative system that adopted the researcher's perception during the interviews to obtain a higher engagement of the interviewee. The analysis afterward was more descriptive, counting on the needed codification to support the categorization, and considering the elements of analysis (BARDIN, 2003; SMITH; SMITH, 2018).

In the data interpretation we conducted, it was possible to identify the interviewee's goals when using the words chosen, capturing a more comprehensible sense of what they meant and allowing to attribute meanings.

Therefore, the methodology adopted sought to analyze the behavior of civil servants and lawyers, as well as the EJP users, regarding the adoption of the platform and consequently the diffusion of the technology. The accurate view of the moment users accepted the EJP clarifies the research and corroborates its objectives.

## 4. RESULTS

### 4.1. Analysis of the categories based on the most important interviewee's responses

Rogers (2003) and Rogers and Shoemaker (1971), propose five factors that influence the perception of users: relative advantage, compatibility, complexity, trialability, and observability. These factors make the user's perception regarding the adoption of innovation, observable in their behavior, which was possible to see in the interviews. It is also identified that the definition of the innovation's diffusion, both conceptually and empirically, is an interrelation in social communication, where messages are transmitted over time, through channels with several actors of a social group, as described by Moore and Benbasat (1991) when studying IT innovations.

The categories created for the content analysis were based on factors influencing perception that are included in Roger's attributes, which were improved by Moore and Benbasat who presented a more comprehensive set of factors. Because of the inspiration from these authors, our categories consider the variables based on the values they assume, which allow working with measurable results (CERVO; BERVIAN, 2002).

Thus, when the interviews were conducted the influencing factors matched the categories of the research which were defined as: perception-driven/convicted; critical/analytical; nostalgic; testers; observers, and highly-demanding adopters. Each of these categories is based on the literature and are described according to the context by which the innovation is adopted, observing the attributes perceived in this innovation by the interviewees.

The categories obtained and described in the research model can identify the main characteristics of the individuals regarding the perception of innovation, and what motives influenced



them in the adoption, allowing to analyze the results judiciously and establish a discussion with other authors. Each citation used to exemplify the category comes with the description of the interviewee, so it is possible to understand the perspective of the participant during the content analysis.

#### **4.2. Perception-driven/Convinced**

The perception-driven/convinced category gathers the responses from those who, when facing the innovation, perceive it as a better tool than the one they have been using. They have their certainties and doubts, and because of their experiences, they realize that innovation brings benefits when compared to the usual tools. This category is based on the 'relative advantage' by Rogers (2003), where innovation is perceived as better than what preceded it (KLEIN, 2017).

The repetitions that led to the creation of the first codification related to 'certainties and doubts,' 'perception of the best,' and 'comparison,' characterize the users that recognize EJP as a better fit to perform the tasks than tools that were used before. There is also evidence of a good relationship with innovation. Besides not wanting to replace the EJP with another, the users recognized its benefits and considered the idea of replacing it only if they received a better tool proven to do the same tasks.

The following citations are examples of interviewees responses that supported the construction of the categories in the content analysis.

"There is no comparison with another [system], there is PROJUD, and it is better than PROJUD... I'm not sure I would replace it, if it was for a better one I would." Lawyer 1

"If there was another one and it was good, I would replace it. But EJP is very practical too." Lawyer 3

"It is a good tool... Even though there are some limitations, I would keep using EJP. I would change only for another that would not cause so much collateral effects to my health." Secretary 2

"No, it is a good software; it is a good program... it has some limitations, but the EJP is very good. Complete." Judge 1

These EJP users also perceive the innovation as an essential advantage, a preponderant factor of superiority over the tool used before in the same court's activities, and which they would not replace. They highlighted the cost-effectiveness of a practical and complete tool. Thus, Woodruff (1997) says that the individual wants and hopes to achieve their desires through the offered innovation and associates its benefits to the brand (in this case the EJP platform). The users become faithful to the use, considering replacing it only if the potential future innovation is better than the EJP.

According to the attributes as defined by Rogers, it is possible to discuss the citations above as 'advantages,' since the innovation has improved the quality of the activities. As for the nature of the EJP as innovation, some authors such as Tidd, Bessant, and Pavitt (2008) argue that the improvement in quality, achieving efficiency and effectiveness, is enough for a tool to be considered an innovation.

#### **4.3. Critical/Analytical**

The critical/analytical category refers to the users who were benefited by the innovation and were served in their needs, achieving an improvement in the quality of the task performed. These users recognize the values of innovation adoption (SARDETO; BUENO, 2013).

The repetitions found interviewees' responses that define this category by the notion that the necessities were supplied, the quality improved, and that there are values appreciated by the group of users. The results are clear and reaffirm the adoption of the EJP as an innovation, with constant improvements and superiority in the performance of tasks surpassing the previous tool. The direct statements given by the users interviewed demonstrated conviction in the meaning of the answers, attributing values to what they defend, assuming they have a real understanding of their needs and expectations when using an innovation.

"it [EJP] delivers, I can perform the activities I want with efficiency by using it, ... Yes, it improves" Lawyer 3

"For what it is designed to do, yes. It improves [the work], yes. Makes it faster" Higher court judge 3

"Ah, it [EJP] delivers, as I said before, I can concentrate everything in one place. It improves a lot. Regarding the service, we offered here [it improves], but on the other hand, it harms our physical health..." Judge 3

The critical/analytical category demonstrates that the values and needs met were based on the compatibility attribute (ROGERS; SHOEMAKER, 1971). These users justify their decision, comparing what past experiences offered, and how the benefits and values so desired are met with the proposed innovation (EJP), reducing uncertainties, and increasing the chances of adoption (HURMERINTA; SANDBERG, 2015).

The innovation experience can thus show previously aggregated values (OSTLUND, 1974), according to the needs of potential adopters (LEAL, 2012). These needs were identified and solved by the innovation, in a similar or better way in comparison to the previous solution, agreeing that the EJP is compatible with previous tools, surpassing expectations and becoming recognized by the social group that uses it. This understanding assumes that frequent users have their opinion about what is better or not for the performance of their activities.

#### **4.4. Nostalgic**

When identifying this category, it is possible to observe where the individuals show nostalgia for the previous tool, with very recent memories. However, they do not tend to return to the past tool, although recognizing the complexity of the current innovation. They seek the efficiency of the tool, recognize advantages even in the face of the initial difficulties, aggregating that EJP is the best tool (SARDETO; GOOD, 2013).

In terms of innovation, these advantages have been identified and emphasize the importance of the tool in use, emphasizing that continuous platform changes require more attention (SEREENONCHAI et al., 2017). However, once observed, such changes and how they promote improvement, resulting in the facilitation of the use, and promote user's independence (YE; KANKANHALLI, 2018). The evidence of the difficulties is observed by the fact that EJP training as a tool was not something experienced by all the users. Some of them were not trained and did not have this time to know the platform better, but these difficulties were not enough to lead the rejection of the innovation.

"[Now] I have no difficulties, but I had already." Higher court judge 2

"I do not have difficulties, because the EJP is easy to use. But it changes a lot, so you have

to be aware.” Secretary 2

“No, no, it is... it is self-explanatory... it is just practice, it is like any other software, at the beginning, when you use it for the first time. It is simple, it is not easy easy, but it is simple.”  
Lawyer 1

“No, not today. At the beginning yes, because it was something new. But it is, let’s say, intuitive.” Secretary 1

Through the evaluation of the repetitions in the interviewees’ responses, it was possible to identify the perception of the difficulties, demonstrating the degree of difficulty in using the innovation.

The collection of data related to this category shows citations on the difficulty of using EJP. Rogers (2003) explains that the lower the complexity in the innovation process, the higher and faster the chances of adoption. The perception of complexity decreases with the time of use and the experience acquired since users master the platform even in the face of regular day-to-day changes when the user is already accustomed to innovation. The user tends to consolidate the idea that the tool is useful, but the need for this innovation becomes a dependency. If the innovation is easy to use, the diffusion is faster (ROGERS; SHOEMAKER, 1971). However, as already mentioned, the training according to the reports of some users was insufficient, and they had to learn on their own, in these cases, there were initial complexities, provoking difficulties, requiring greater cognitive effort (SCHIFFMAN; KANUK, 2000). However, this effort – which according to the answers has been overcome – is related to the individual differences among users.

#### 4.5. Testers

This category of users was the one with the highest number of repetitions of words, conveying the idea that experimentation influences the actors’ perception about the innovation’s implementation, increasing the likelihood for them to adopt it. Therefore, the more individuals try a technology, more rapidly they adopt and disseminate it .

It is based on Rogers’ (2003) “trialability” attribute, where innovation is perceived in terms of the degree to which it can be experienced before adoption, which facilitates the outcome of the process in terms of innovation since it can be experienced and not imposed. It was observed in the interviews that part of the individuals accessed the platform to try it out. The others counted on the support from the individuals that were submitted to the training and who learned by themselves because they were exposed to the system (TEIXEIRA; RÊGO, 2017).

“No. When they installed the EJP here, we were well trained.” Higher court judge 1

“Well, it was only one day. We had to teach ourselves the rest.” Secretary 1

“I attended..., there was training..., at the beginning the training was not well used, everybody learned over time.” Secretary 2

“Yes. But we improve by using it.” Judge 2

The case of the EJP is a relatively new technology within the 8<sup>th</sup> Regional Labor courts, and, according to the interviewees, failed in providing adequate time for testing, even if given training. Therefore, in this case, it cannot rely on the fact that other organizations have already adopted the technology, serving as a reference for users. In order to become decision-makers

about the adoption that has already been pre-tested, users need to have a greater facility in the process to learn about the utility and purpose of the EJP process (ZHU; ZHANG, 2016).

Experimentation and self-help replications demonstrate how users responded to EJP, as well as persistence and sense of use of innovation as a tool (VENKATESH et al., 2003). It was noticeable to see how the users struggled to use the tool by stating the acceptance of innovation within TRT, even with the lack of time to test the technology.

#### 4.6. Observers

The category of “Observers” initially presented the highest number of repetitions, and it defined those who could observe the positive and negative aspects of the execution of their tasks after the use of the new technology. Also, these users observed they had more control over their work considering it became less time-consuming, and were able to share experiences with the other members of the social group, thus facilitating a group experience.

It was also verified that the perception of results, when those involved in this process recognize the advantages of adoption as beneficial to innovation, optimize time, reduce rework, and cause the interaction between users, in a way contributing to the exchange of experiences (JORGE; CARDOSO; GODINHO, 2015).

“Yes, we talk about this issue... but it is positive that I can check the status [of the judicial processes] using my computer, I do not have to go to the districts’ office.” Lawyer 2

“yes, yes, we exchange experiences, called exchange messages... when there are updates, something new, I always ask, or people ask me.” Lawyer 3

“I think it is positive. It is possible to work faster.” Secretary 3

“It is, it is well recognized. The positives are that it improved the speed, the access to justice... It is an excellent tool.” Judge 1

Within this category, the inherent repetitions, which mention “self-control” and “sharing experiences,” clearly showed that users, due to the adoption of the new technology, perceived the ease of use, especially regarding the accessibility of the EJP. These seek to share for the improvement and control of the exercise of their activities, as well as the sharing of experiences of each user, through exchanges of experiences of specific problems or situations. When this discussion takes place, information sharing becomes more and more positive, solidifying the use and consequently maintaining the adoption of innovation (SEREENONCHAI et al., 2017).

The repetitions related to “observed aspects” and “less time” show how users can perceive the results achieved with the implementation of the EJP as well as through the exchange of experiences as already mentioned, and how this process contributed to quality improvements in a short period making the cost-benefit aspect of implementation increasingly positive, with elements that are truly proven through observations.

Based on Rogers’ (2003) “Observability,” this category shows the result of the innovation that was identified by the group, as well as in Moore and Benbasat’s (1991) studies, where the authors adapted the attributes of ‘complexity’ and ‘observability,’ which were later called ‘ease of use’ and ‘visibility,’ being adopted in this research, adapting to the explicit context discussed here.

In this way, the adopters then become important actors in the diffusion (KINNUNEN, 1996), because they are responsible for the communication process of innovation within the

organization. Users have the role of decision makers, when they affirm so many qualities to the use of PJE and resolve, even when there are difficulties, to continue with the use, subsequently realizing the advantages of adoption, and contributing to the diffusion through the shared aspects positively. If users can see other users being benefited by using the innovation, this leads to successful promotion (ENGEL; BLACKWELL; MINIARD, 2008).

According to Rogers and Shoemaker (1971), one can merge the perception of the relative advantage, observability, and experimentation that positively contribute for the adoption to take place. While 'complexity' is taken as a negative factor for adoption, the category equivalent to Rogers' attributes 'observability' corroborates the irrefutable results obtained in this category when it is stated that EJP innovation was adopted according to the codes mentioned by the respondents, based on users' perceptions and observations.

#### 4.7. Highly-demanding adopters

The highly demanding adopters are those who perceive the results obtained, especially the best results, and who also perceive that the execution of their task was accelerated after the innovation implanted in the TRT of the 8<sup>th</sup> Brazilian Judicial District in Belem (PA).

It is possible to demonstrate how the members of the court were able to perceive the changes, seeking the improvement of the process along with innovation. On the other hand, the users were able to have their opinion, on prevailing factors that make the difference in the execution of the tasks in relation to how it was executed before (STUDER, 2007).

Results perceived in this category are based on the characteristics perceived by Moore and Benbasat (1991) known as 'Image,' which shows how innovation improves the image of the social group, at the moment in which they have more quality in the execution of their tasks.

"I think that every electronic process is faster than physical ones." Lawyer 2

"Yes, it improved. The analysis takes less time now, it is faster." Higher court judge 3

"At least here in our judicial district, I am sure that the process is faster." Secretary 1

"I think yes, the EJP helps the process flow regularly, even though there are some delays because of technical problems with the internet that affect the EJP." Secretary 2

This category is based on the perceived characteristics of the attribute 'image.' Thus, in order for adoption to take place, users' needs should be met in a positive way, where they, in turn, showed that innovation was better than the previous technology, highlighting the resolution of the most common problems with the use of EJP, as well as the positive results in order to motivate users to increase adoption (HURMERINTA; SANDBERG, 2015).

In the publication of the National Council of Justice, the EJP is portrayed as an innovation that has the social value of being faster, which undoubtedly is a challenge for all justice in Brazil. Indeed, the interviewees' reflections, allowed observing that the perceived results were predominant factors related to the speed of the activities. According to Joshi (1991), users assess the status changes that will be brought about by innovation (once favorable), where resistance in adoption is reduced successfully. For other authors, such as Venkatesh (2003), this exemplifies the image as a social influential element, where the individual realizes that other important people (in this case the demand of society that needs justice) believe that the system is valid. The image then becomes a positive aspect of perception of evolutionary results, given the analysis

of the data collected through the interviews, which verified that there was a gain regarding the activities' speed, as well as the results being perceived by the group, through the adoption and consequently the diffusion of the innovation that was implemented.

When considering that individuals are more likely to adopt the innovation when perceiving image enhancement (Rogers, 2003), in this case study the acceleration of the process played a crucial role influencing the behavior that motivated adoption.

## 5 CONCLUSION

This article analyzed the factors that influenced the process of adoption and diffusion of innovation, regarding the use of the Electronic Judicial Process (EJP) in the 8<sup>th</sup> Regional Labor Court, particularly at the 8<sup>th</sup> Judicial District of the city of Belém, in the Brazilian state of Pará (PA).

According to the evaluation of the factors that influenced the adoption of EJP, it was possible to study the behavior of rejection and acceptances in the process of the innovation adoption, as well as to observe the factors that influenced the use of technological innovation, and the degree of complexity the users found. These results were obtained through interviews with the use of the exploratory qualitative method, with content analysis and creation of categories that allowed a coherent interpretation that was later correlated to the categories proposed by Rogers (2003).

The categories were created also observing the constructs proposed by Moore and Benbasat (1991), who also found support for their work in Roger's theory (2003). Our study managed to evaluate the perception of the users of the Electronic Judicial Process regarding the acceptance of the platform. As for the first category created, 'perception-driven/convicted' users, it was identified that the majority of the interviewees, considered the tool (EJP) better than the one used before, and did not contemplate replacing EJP, realizing the importance and superiority of the platform for the performance of functions, thus becoming faithful to the tool.

The 'critical/analytical' users described their needs and emphasized improvement in the quality of the tasks they perform. These users recognized the value of innovation, where their past experiences with the old tool, justify innovation by replacing it with a new one.

The 'nostalgic' said they missed the tool that preceded the innovation, but they realize that adoption is essential to facilitate the use of the new tool. However, these users are not intimidated with the difficulties and work toward acceptance.

The category of users called 'testers' showed that individuals who have had a chance to experiment the innovative technology have been able to adopt it more quickly, and through their experiences, collaborate to spread innovation. No doubt the testers are early adopters and have an important role in innovation adoption. The 'observers,' however, are the users that could observe the positive and negative aspects of adopting the innovation and use their sensitiveness to assess the benefits of using the new tool in order to reduce the time to accomplish their tasks and increase efficiency in the performance of their tasks.

Finally, the category of 'highly-demanding adopters,' formed by users who always seek the highest efficiency from their tools, perceive the changes and improvements in the innovation process based on the achievement of their needs as a condition for acceptance of the EJP. By accelerating the judicial processes, these individuals – aware of their tasks and the context in which they operate – are highly critical regarding their satisfaction, influencing their behavior toward the adoption of innovation.

Thus, it is possible to say that EJP users, because they are aware of the role they play within the Labor Court, have been important actors for the adoption of the innovation as well as

the diffusion of the technology. Their perceptions were crucial to reflect on the new technology based on their past experience and understand the benefits of the new tool for all stakeholders involved in the judicial processes.

The adoption of the innovation in the case study promoted the organization of the activities and consequently accelerated the processes, although there were difficulties in the first moment, since not all the users had time to test the technology. The fact that users did not have more experimenting opportunities prior to using the EJP in their day-to-day work is not considered a subterfuge for not using and consequently not adopting the technology. This approach toward acceptance was considered in the evaluation of the process of adopting the EJP as an innovation in the judicial system (TEIXEIRA; RÊGO, 2017; KLEIN, 2017).

As for the limitation of the study, the time-consuming process of interviews may have influenced the participation of the interviewees, as they had limited time to engage in the process, it also prevented the participation of more professionals, which would have enriched the data collected. Therefore, future work should consider the possibility of conducting more structured interviews or data collection tools, involving other labor courts and judicial districts, expanding the knowledge on the use of the EJP as an innovative element in the judicial system

In addition to the increase of the sample, future research could work in the creation of a model that emphasizes the data obtained in relation to the context around the adoption of the innovation, starting from the endogenous principle of the organizations, and correlating the attributes perceived in the adoption process. It is also essential to compare similar processes occurring in other countries and to understand what factors have positively influenced their effectiveness.

## REFERENCES

- AZAD, B.; KING, N. Enacting computer workaround practices within a medication dispensing system. *European Journal of Information Systems*, v. 17, p. 264-278, 2008.
- BARDIN, L. *Análise de Conteúdo*. Lisboa: Edições 70. (2003).
- BOGDAN, R.; BILKEN, S. *Investigação qualitativa em educação: uma Introdução à Teoria a aos Métodos*. Porto: Porto Editora, p. 19-62, 1994.
- BOYLE, A.M.; O’SULLIVAN, L.F. Staying connected: Computer-mediated and face-to-face communication in college students’ dating relationships. **CyberPsychology, Behavior & Social Networking**, Vol. 19, No. 5, p. 299–307, 2016.
- CASTELLS M. **A Sociedade em Rede**. 6ª Edição. São Paulo: Editora Paz e Terra. 2002.
- CERVO, A. L. BERVIAN, P. A. **Metodologia Científica**. 5 ed, São Paulo: Prentice Hall, 2002.
- DI BLASI, G. A propriedade Industrial: os sistemas de marcas, patentes e desenhos industriais analisados a partir da Lei nº. 9.279, de 14 de maio de 1996, 2002.
- DRUCKER, P. F. **Innovation and Entrepreneurship: practice and principles**. Burlington, MA.: Elsevier, 2004.
- ENGEL, J. F.; BLACKWELL, R. D.; MINIARD, P. W. **Comportamento do consumidor**. São Paulo: Cengage Learning, 2008.

- FERREIRA, N. S.; ARRUDA FILHO, E. J. M.; LIMA, R. M. C. Convergência tecnológica da rede social Facebook: Uma análise Netnográfica da preferência de uso. **Contemporânea (UFBA. Online)**, v. 12, p. 211-233, 2014.
- HURMERINTA, L.; SANDBERG, B. Sadness Bright as Glass: The Acceptance of Emotionally Sensitive Radical Innovation. **Journal of Marketing Management**, Vol. 31, No. 9-10, p.918-939, 2015.
- JORGE, E. M. F.; CARDOSO, H. S. P.; GODINHO, P. R. A Inovação no Processo Judicial Eletrônico da Bahia para Administração da Justiça Brasileira. **Revista LEVS**, n. 16, 2015.
- JOSHI, K. A modelo f users' perspective on change: the case of information systems technology implementation. *MIS Quarterly*, Minneapolis, v. 15, n.2, p.229-241, 1991.
- KOZINETS, R.V. Technology/Ideology: How Ideological Fields Influence Consumers' Technology Narratives. **Journal of Consumer Research**, Vol. 34, No. 2, p. 865-881, 2008.
- KINNUNEN, J. G. Tarde as a Founding Father of Innovation Diffusion Research. **Acta Sociologica** (Taylor & Francis Ltd), v.39, n.4, p. 431-442. 1996.
- KLEIN, A. D. O processo judicial eletrônico como instrumento facilitador para efetivação da política pública de acesso à justiça, Dissertação de Mestrado, USCS, 2017.
- LEAL, E. A. **Fatores determinantes do uso de inovação tecnológica na educação a distância: um estudo com docentes dos cursos na área de negócios. 2012.** Tese de doutorado em Administração de empresas- Fundação Getúlio Vargas, São Paulo, 2012.
- LUNARDI, G. L.; BECKER, J. L.; MAÇADA, A. C. Relacionamento entre investimentos em tecnologia de informação e desempenho organizacional: um estudo cross-country envolvendo bancos brasileiros, argentinos e chilenos. In: Congresso Nacional da Associação Nacional dos Programas de Pós-graduação em Administração, 27., 2003. Atibaia. Anais. São Paulo: EnANPAD, 2003.
- MACHADO, H.; NUNES, J. A. Uso e representações da ciência e de novas tecnologias nos Tribunais e (re)configurações da cidadania. Universidade do Minho,2003. <[https://repositorium.sdm.uminho.pt/bitstream/1822/3329/1/Comunica%C3%A7%C3%A3oA PS.pdf](https://repositorium.sdm.uminho.pt/bitstream/1822/3329/1/Comunica%C3%A7%C3%A3oA%20PS.pdf)>
- MOORE, G. C.; BENBASAT, I. Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, v. 2, n. 3, 1991.
- OH, H. J.; OZKAYA, E.; LAROSE, R. How Does Online Social Networking Enhance Life Satisfaction? The Relationships among Online Supportive Interaction, Affect, Perceived Social Support, Sense of Community, and Life Satisfaction. **Computers in Human Behavior**, Vol. 30, p. 69-78, 2014.
- OSTLUND; L. E. Perceived Innovation Attributes as Predictors of Innovativeness. **Journal of Consumer Research**, Vol. 1, No. 2, p. 23-29, 1974.
- PENNINGS, J. M. Innovations as Precursors of Organizational Performance, no Information Technology and Organizational Transformation: Innovation for the 21st Century Organization, GALLIERS, R. D. e BAETS, W. R. J. (org.). Chichester: **John Wiley & Sons**, 1998.



- PEREZ, G.; ZWICKER, R. Determinant Factors of Information Systems Adoption in The Health Area: A Study Of The Electronic Patient Record. RAM- Revista de Administração Mackenzie, v. 11, Nº. 1. p. 174-200. ISSN 1678-6971. São Paulo, SP- JAN/ FEV, 2010.
- RODRIGUES, Willian Costa. Metodologia do trabalho científico. Paracambi: FAETEC/IST, 2007.
- ROGERS, E. M. Diffusion of innovation. 5. ed. New York: The Free Press, 2003.
- ROGERS, E. M.; SHOEMAKER, F. D. Communication of Innovations: A Cross-Cultural Approach, 1st Ed., New York: The Free Press, 476 p., 1971.
- SARDETO, P. E. R.; BUENO, M. V. B. A contribuição do Judiciário brasileiro na construção de uma sociedade mais democrática: o Judiciário eletrônico (e-judiciário). **Revista Democracia Digital e Governo Eletrônico**, v. 2, n. 9, 2013.
- SCHIFFMAN, L. G.; KANUK, L. L. **Comportamento do consumidor**. Tradução de Vicente Ambrósio. 6 ed. Rio de Janeiro: LTC, 2000.
- SCHUMPETER, J. A. A teoria do desenvolvimento econômico. 3. ed. São Paulo: Abril Cultural, 1982.
- SCHUMPETER, Joseph. The Theory of Economic Development. Oxford. Oxford University Press, 1978.
- SEREENONCHAI, S.; ARUNRAT, N.; PEIXI, X.; XUE, Y. Diffusion and Adoption Behavior of Environmentally Friendly Innovation: Sharing from Chinese Society. **International Journal of Behavioral Science**, Vol. 12, No. 2, p. 90-109, 2017.
- SMITH, R.; SMITH, L. **Qualitative methods**. In *Research Methods in Human Rights* (pp. 78-101). Routledge, 2018.
- STUDER, A. C. R. Processo Judicial Eletrônico e o Devido Processo Legal. Dissertação de Mestrado. Universidade do Vale do Itajaí- UNIVALI. Centro de Educação de Ciências Jurídicas, Políticas e Sociais. Itajaí- SC. 2007.
- TEIXEIRA, Janaina Angelina; RÊGO, Mariana Carolina Barbosa. Inovação no sistema Judiciário com a adoção do Processo Judicial eletrônico em um Tribunal de Justiça brasileiro. **Revista Ciências Administrativas**, v. 23, n. 3, p. 369-384, 2017.
- THIOLLENT, M. Metodologia da pesquisa- ação. ISBN 978-85-249-1716-5. 18. Ed. São Paulo: Cortez, 2011.
- TIDD, J.; BESSANT, J. & PAVITT, K. Gestão da inovação. Porto Alegre: Bookman, 2008.
- TRIVIÑOS, A. N. S. Introdução a pesquisa em ciências sociais: a pesquisa qualitativa em educação. São Paulo: Atlas, 1987.
- VENKATESH, V.; MORRIS, M. G., DAVIS, G. B.; DAVIS, F. D. User Acceptance of Information Technology: Toward a Unified View. **MIS Quarterly**, v. 27, n. 3, p. 425- 478, 2003.
- WOODRUFF, R. B. Customer value: the next source for competitive advantage. **Journal of the Academy of Marketing Science**, v. 25, n. 2, 1997, pp.139-153.

YE, H.; KANKANHALLI, A. User Service Innovation on Mobile Phone Platforms: Investigating Impacts Of Lead Userness, Toolkit Support, And Design Autonomy. **MIS Quarterly**, Vol. 42, No. 1, p. 164-197, 2018.

ZAMUR FILHO, J. Processo Judicial Eletrônico: Alcance e efetividade sob a égide da lei nº 11. 419, de 19.12.2006. Faculdade de Direito da Universidade de São Paulo. SP. 2011.

ZHU, X.; ZHANG, Y. Political Mobility and Dynamic Diffusion of Innovation: The Spread of Municipal ProBusiness Administrative Reform in China. *Journal of Public Administration Research and Theory*, Vol. 26, No. 3, p. 535-551, 2016.

### Contribution of authors

Contribution	[Author 1]	[Author 2]
1. Definition of research problem	√	√
2. Development of hypotheses or research questions (empirical studies)	√	
3. Development of theoretical propositions (theoretical work)	√	√
4. Theoretical foundation / Literature review	√	
5. Definition of methodological procedures		√
6. Data collection	√	
7. Statistical analysis		
8. Analysis and interpretation of data	√	√
9. Critical revision of the manuscript	√	√
10. Manuscript writing	√	√
11. Other (Final revision and adjustment)		√