



Public management

# The adoption of innovations in Brazilian labour courts from the perspective of judges and court managers

*Adoção de inovações em tribunais trabalhistas brasileiros na perspectiva de juízes e administradores judiciais*

*La adopción de innovaciones en los tribunales laborales en Brasil desde la perspectiva de jueces y administradores judiciales*

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## Abstract

There is a lack of studies upon the innovation process in the judiciary. To contribute to filling this gap, this study aims to describe the perceptions of the Brazilian labour courts' judges and managers related to resources and capabilities associated with the development and adoption of innovation, represented by the electronic lawsuit, and the impact on Court's performance and factors that facilitate or hinder the adoption of innovations. A document analysis and 35 interviews were conducted – nine with judges and 26 with court managers – and the data were analyzed using a content analysis with *a priori* categorization. The results show the following: (i) the process of development and adoption of innovation occurs in three ways – centralized in higher bodies, through partnerships with other courts or through internal development; (ii) there are important resources and capabilities internal to courts and inter-organizational routines associated with the innovation process; and (iii) innovation contributes to the development and integration of other innovations and changes in working routines. Additionally, barriers to and facilitators of the innovation adoption process are discussed and a research agenda is stated.

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**Keywords:** Innovation; Innovation adoption; Judicial management; Public management

## Resumo

Há uma lacuna de estudos relacionados ao processo de inovação no Judiciário. Para contribuir para preencher esta lacuna, este estudo tem como objetivo descrever percepções de juízes e gestores de tribunais trabalhistas brasileiros relacionados a recursos e capacidades associadas com o desenvolvimento e a adoção de inovação, representada pelo processo judicial eletrônico, o impacto no desempenho do tribunal e fatores que facilitam ou dificultam a adoção de inovações. Análise documental e 35 entrevistas foram realizadas - nove com juízes e 26 com gestores - e os dados foram analisados por meio de análise de conteúdo com categorização a priori. Os resultados evidenciam que: (i) o processo de desenvolvimento e adoção de inovação ocorre de três formas - centralizada em órgãos de cúpula, por meio de parcerias com outros tribunais ou por meio de desenvolvimento interno; (ii) existem importantes recursos e capacidades internas aos tribunais e rotinas inter-organizacionais associadas ao processo de

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inovação; e (iii) a inovação contribui para o desenvolvimento e integração de outras inovações e mudanças nas rotinas de trabalho. Adicionalmente, barreiras e facilitadores do processo de adoção da inovação são discutidos e uma agenda de pesquisa é apresentada.

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*Palavras-chave:* Inovação; Adoção de inovação; Administração judicial; Administração pública

## Resumen

Hay una falta de estudios acerca del proceso de innovación en el poder judicial. Para contribuir a rellenar esa laguna, en el presente estudio se busca describir las percepciones de jueces y administradores de tribunales laborales brasileños referentes a recursos y capacidades relativas al desarrollo y la adopción de innovación –representada por el proceso judicial electrónico–; el impacto en el desempeño del tribunal y factores que facilitan o dificultan la adopción de innovaciones. Se llevaron a cabo un análisis de documentos y 35 entrevistas – nueve con jueces y 26 con gestores – y se analizaron los datos mediante un estudio de contenido de categorización *a priori*. Los resultados muestran que: (i) el proceso de desarrollo y la adopción de la innovación ocurre de tres formas – centralizada en organismos superiores, por medio de asociaciones con otros tribunales, o mediante el desarrollo interno; (ii) existen importantes recursos y capacidades internas a los tribunales y rutinas interorganizacionales relacionadas con el proceso de innovación; (iii) la innovación contribuye al desarrollo y la integración de otras innovaciones y cambios en las rutinas de trabajo. Asimismo, se discuten las barreras y facilitadores de este proceso y se propone una agenda de estudios.

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*Palabras clave:* Innovación; Adopción de innovación; Administración judicial; Administración pública

## Introduction

Organizational resources and capabilities are analytical categories used in studies on organizational performance and competitiveness (Barney, 2001a, 2001b), and their application has been demonstrated to be important in the public sector (Johanson, 2009; Lee & Whitford, 2013; Llewellyn & Tappin, 2003), although they require greater systematization (Klein, Mahoney, McGahan, & Pitelis, 2011). Innovation, understood by Rogers (2003, p. 475) as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption,” has become a core aspect of public sector reform programmes (Boyne, Gould-Williams, Law, & Walker, 2005). In particular, judicial reforms follow the most usual innovation adoption standards used in public administration reforms overall (Scheb & Matheny, 1988).

The adoption of innovations through the use of information and communication technologies (ICTs) in public organizations in general (Kanungo & Jain, 2011; Lee & Whitford, 2013; Zheng, Chen, Huang, & Zhang, 2013) and in courts in particular (Bhatt, 2005) has sparked academic interest and “represent a key area, as both an object and tool of law making” (Falkner, Lange, & Lawless, 2012, p. 18). However, we lack studies that associate resources and capabilities to the judiciary’s adoption of innovations. Therefore, this study aims to: (1) describe the innovation adoption process in Brazilian labour courts, focusing on the electronic lawsuit; (2) identify resources and capabilities associated with the development and adoption of innovation represented by the electronic lawsuit and the impact on Court’s performance, and; (3) discuss factors that either facilitate or hinder the adoption of innovations in those courts.

The development of the electronic lawsuit in Brazilian labour courts can be classified into three periods: (a) prior to 2006, herein referred to as the *embryonic period*, with the consolidated use of computers and specific initiatives for the development of systems to support such lawsuits and other administrative

systems; (b) the 2006–2011 *incentive period*, which began with Act n° 11.419 of 2006, formalizing Brazil’s use of the electronic lawsuit; and (c) the *standardization effort period* represented by Resolution n° 94 of the Brazilian Higher Council of Labour Justice (*Conselho Superior da Justiça do Trabalho* – CSJT) of 2012, which makes the adoption of a unified system of electronic lawsuits mandatory and defines implementation targets to be followed by all labour courts of that country.

This study is relevant because it has the potential both to create knowledge in an area that lacks studies and to generate subsidies for the improvement of judicial management. Labour courts were chosen because of the lower average length of judicial proceedings compared to other jurisdictions (Dias Júnior, 2004) and because of the emphasis, in terms of the introduction of innovations, on information technology (IT), electronic lawsuits and other services (Costa, 2008).

## Innovation in the judiciary and the role of resources and capabilities

The process of diffusion and adoption of innovations is one of the most important instruments of technical and social change (Katz, Levin, & Hamilton, 1963). Studies upon this subject are used in different knowledge areas, such as economics, sociology, anthropology and business administration. The process of diffusion is defined as the “acceptance, over time, of some specific item – an idea or practice, by individuals, groups or other adopting units, linked to specific channels of communication, to a social structure, and to a given system of values, or culture” (Katz et al., 1963, p. 237). Along these same lines, Rogers (2003, p. 11) defines diffusion as “the process by which an innovation is communicated through certain channels over time among the members of a social system.” In fact, diffusion and adoption of innovations are stages on the same continuum, given the strong interdependence between them.

Rogers (2003) suggests five factors that influence the adoption of innovations: (i) relative advantage, defined as the degree to which innovation has clear advantages over an existing product or process; (ii) compatibility with existing systems and values – the more consistent innovation is with the existing situation, the higher the probability of adoption; (iii) complexity – the more difficult the changes involved in the innovation are perceived to be, the lower the probability of its adoption; (iv) testing or the possibility of testing – the possibility of experiencing innovation before making a final decision increases the likelihood of its adoption; and (v) level of visibility – the more visible the advantages and benefits of the innovation, the higher the probability of its adoption.

The technology acceptance model (TAM) is specially developed to assess the adoption of information systems and computer technologies (Davis, Bagozzi, & Warshaw, 1989). In this model, the attitude of using or not using a new technology is a function of the perception of its usefulness and ease of use; external factors, such as system features, can also influence these perceptions (Davis, 1993; Davis et al., 1989). Ease of use is related to the perception that the use of a certain technology reduces physical and mental effort and usefulness to the perception that use increases work performance (Davis et al., 1989).

The adoption of ICTs has played a fundamental role in public administration (Zheng et al., 2013), especially in the Judiciary, and this technology is considered a multidimensional resource (Bhatt, 2005). The innovation present in studies related to the Judiciary is primarily considered in its organizational and technological dimensions (Sousa & Guimaraes, 2014). In this sense, the adoption and use of ICTs and their impact on judicial performance stand out (Rosa, Teixeira, & Pinto, 2013; Saman & Haider, 2013). Studies of innovation adoption by the judiciary have addressed issues related to e-government (Joia, 2008, 2009; McKechnie, 2003), new computer tools and databases (Hara, 2007; Rosa et al., 2013), improving access to justice through alternative methods (Anderson, 2003) and, specifically, the electronic lawsuit (Velicogna, Errera, & Derlange, 2011, 2013). Organizational resources and capabilities have been useful in assessing the adoption of technological innovations (Zheng et al., 2013).

The resources that the organization has and controls are integrated and necessary components for understanding its performance. Penrose (2009, p. 21) has emphasized organizations' internal resources as determinants of their economic function and defines the firm as a "collection of productive resources the disposal of which between different uses and over time is determined by administrative decision." Thus, Penrose contributed with theoretical concepts and assumptions, such as the importance of the organization's trajectory and history; the emphasis on internal resources; the firm as a pool of resources; and the interaction among heterogeneous resources, which supported the development of the approach called Resource-Based View (RBV).

The RBV approach has two core theoretical assumptions, according to Barney (1991): (i) organizational resources relevant to performance are distributed heterogeneously; and (ii) such resources are not perfectly mobile among

organizational units. The resources that contribute to the organization's competitive advantage should be valuable to improve efficiency and effectiveness, rare and difficult to imitate or replace, durable, and both controlled and owned by the organization (Barney, 1991; Grant, 1991). Difficulty in imitating can occur not only because of the phenomenon of causal ambiguity – *i.e.*, when the relationship between resources and performance is not easily understood – but also because of social complexity, such as social relationships, traditions and culture (Barney, 1991). Peteraf (1993) adds that organizational resources and capabilities involve a tacit dimension.

Organizational resources and capabilities are closely related because they represent the system inputs, which refer to the performance of a task or activity (Grant, 1991). Resources include tangible assets, such as machines, equipment, and buildings, and intangible assets, such as capabilities, processes and information, that are both relevant and valuable to the organization (Barney, 2001a; Wernerfelt, 1984). Therefore, a fluidity and even a tautology in these concepts is observed and despite this comprehensive definition, Barney (2001a) understands that the simplest, most inclusive definition of resources improves the RBV's prescriptive characteristic. Resource value and the analysis of capabilities are related to the context in which the organization is inserted (Barney, 2001a; Piening, 2013).

The organizations' strategy direction and main performance source are defined by their internal resources and capabilities (Grant, 1991; Peteraf, 1993). Thus, the first stage of the review process of organizational resources is the identification and classification of resources. This may involve the development of resources in the event of a "gap", for instance, reallocation, reduction and enhancement of resources – and subsequently, related capabilities (Grant, 1991). Organizations have different pools of resources; therefore, time and money are required to change those pools (Wernerfelt, 1995). There are different kinds of resources, for example, financial, physical, human, technological, reputational and organizational (Grant, 1991) or physical, human and organizational (Barney, 1991).

Makadok (2001, p. 389) makes two points to distinguish resources and capabilities: (a) capability is incorporated into organization's processes – it is specific to the organization and difficult to transfer and thus, it is developed instead of purchased; (b) the objective of capability is to improve the productivity of the organization's other resources. According to this author, capability is a "special type of resource," an embedded, non-transferable, specific resource that aims to improve the use of other resources owned by the organization.

The concepts of capability and routine are used synonymously in the literature (Barney, 2001a; Grant, 1991; Nelson & Winter, 1982). The idea of routine is related to standardized and repetitive processes (Winter, 2003), it involves technological and social aspects (Becker, Lazaric, Nelson, & Winter, 2005), and it is dynamic and derived from the evolutionary theory of economic change: "the core concern of evolutionary theory is with the dynamic process by which firm behaviour patterns and market outcomes are jointly determined over time" (Nelson & Winter, 1982, p. 18). Routines can be evaluated in relation to the following factors: (i) variation – organizations vary in the

selection and development of routines; (ii) selection – the process of selecting routines that are more efficient; and (iii) retention – this occurs with the survival of the routine that contributes to performance generation. The survival of a routine is related to its ability to generate performance (Barney, 2001b).

Effective routines are interpreted as best practices (Mathews, 2002). Despite idiosyncratic elements, there are common aspects among organizations that Eisenhardt and Martin (2000) call best practices. Thus, for a certain capability among organizations – for example, the development of a new service – there are not only idiosyncratic aspects but also common features that are more homogeneous. Because of these properties, best practices can be defined as effective routines that share certain elements among organizations. This definition can be especially useful in the public sector, where there is a higher level of standardization of services, especially in the judiciary, where procedures are strongly regulated.

Similar to the private sector, the use of the RBV in the public sector helps relate capabilities and resources to achieve organization's goals (Pablo, Reay, Dewald, & Casebeer, 2007). In this context, the performance of public organizations is associated to the identification of valuable resources and capabilities to create maximum public value (Bryson, Ackermann, & Eden, 2007; Matthews & Shulman, 2005).

Spriggs (1996) evaluates the influence and conditions that higher courts in the United States impose on federal administrative agencies and addresses three categories of resources related to: court attributes, characteristics of administrative agencies, and external actors. Guimaraes, Odelius, Medeiros, and Santana (2011) address judicial innovation through the resources lens. Those authors identify three organizational routines derived from the innovation process at the Brazilian Superior Court of Justice (*Superior Tribunal de Justiça* – STJ): electronic management, project management and process management.

## Method

This study is exploratory and descriptive and its object is the electronic lawsuit in Brazilian labour courts, hereinafter understood as organizational innovation. It is an innovation because the change from printed to electronic lawsuit resulted in new combinations of the Brazilian labour courts' resources, routines and capabilities, which were reflected in their workflow – *i.e.*, those courts' production process – and in the provision of judicial services.

Labour justice in Brazil consists of 24 Regional Labour Courts (RLC). The smallest RLC has 14 lower courts, whereas the largest has 178 lower courts. There is also a Higher Labour Court (*Tribunal Superior do Trabalho*). Trials in the lower courts (first instance) are decided in a monocratic manner, and the RLCs (second instance) are responsible for reviews of those judgments. The Higher Labour Court is responsible for judgments at the appellate level, which represents the third and last instance. In addition to these courts, Brazilian labour justice is also composed of the Higher Council of Labour Justice, the highest governing and control body of the labour courts. The

24 regional courts were, at the period of data collection, in different adoption stages of the electronic lawsuit. Table 1 shows the RLCs according to their size and rate of innovation adoption, represented by the percentage of electronic lawsuits in relation to the total number of cases.

To obtain a representative sample of the population, five Regional Labour Courts were chosen from those with the lowest adoption rates of the electronic lawsuit: São Paulo (capital city), Minas Gerais, Pará/Amapá, Amazonas/Roraima and Alagoas; five others were chosen from those with the highest adoption rates: Paraná, Santa Catarina, Paraíba, Goiás and Sergipe; and the Federal District. The sample also included the Higher Labour Court and the Higher Council of Labour Justice. Therefore, the final sample was represented by courts distributed across different Brazilian regions, the appellate court and by the organ of governance of Labour Justice. In this sense it is supposed the sample represents the population.

Data were gathered from January to November 2014 in two steps. The first step consisted of document analysis, *i.e.*, reading regulations and laws concerning the electronic lawsuit to understand the normative evolution of the innovation. In the second step, 35 in-depth interviews were conducted with the help of semi-structured script, including the following topics: specifying innovation in the judiciary; planning and adopting innovation; resources and capabilities; impacts and consequences of innovation; and aspects that contributed and hindered the adoption of innovation.

We interviewed nine judges (seven from first-instance courts and two from second-instance courts), 15 lower court managers who were responsible for the administrative management of these courts, and 11 information technology managers who were responsible for managing information and technology resources of regional courts; the interviewees were distributed among courts across all regions of Brazil. Three interviewees were female (~9%), and thirty-two were male (~91%); the average age was 44 years old, with a standard deviation of 6.5 years; they worked on average for 16 years in labour court, with a standard deviation of eight years. The interviewees represent the main people responsible for the adoption of the electronic lawsuit in the labour courts. The interviews lasted an average of 29 min. Thirty-four interviews were recorded; only one could not be recorded.

The information collected through the interviews was recorded, transcribed and analyzed using the content analysis technique (Bardin, 2011) in three stages: (1) pre-analysis, with an exploratory reading and *corpus* construction with the transcribed interviews classified by subject (magistrate, court manager and ICT manager), court, geographic region and gender; (2) material exploration, with database construction and application of contrast and similarity analysis, combining excerpts from interviews with defined categories and variables, and; (3) processing and interpretation of results against the objectives and categories of analysis. The categories of analysis were defined *a priori* by reference to the scripts: innovation, resources, capabilities, impact and consequences, performance, aspects that contribute and aspects that hinder the adoption of the innovation studied.



Table 1  
Regional Labour Courts in Brazil according to the size and rate of electronic-lawsuit adoption in 2012.

State/region	Court size	Number of judges – 1st and 2nd instances	Number of permanent servants – 1st and 2nd instances	Number of new cases – 1st and 2nd instances	Number of pending cases – 1st and 2nd instances	N° of Courts	Electronic lawsuit rate – 1st and 2nd instances courts (%)
Rio de Janeiro	Large	284	3917	335,762	280,788	140	Na
São Paulo (Capital City)	Large	422	5533	746,161	623,365	178	0.64
Minas Gerais	Large	284	3167	391,135	192,854	144	0.00
Rio Grande do Sul	Large	280	3422	266,399	216,034	132	1.22
Bahia	Medium	205	2252	189,741	230,954	88	1.09
Pernambuco	Medium	144	1711	199,711	111,760	67	1.37
Ceará	Medium	68	848	72,054	71,685	35	21.16
Pará/Amapá	Medium	105	1067	110,929	40,734	53	0.75
Paraná	Medium	190	2267	243,934	225,254	96	100.00
Distrito Federal/Tocantins	Medium	89	1060	92,799	92,514	35	3.09
Amazonas/Roraima	Medium	73	1044	84,636	45,085	32	0.00
Santa Catarina	Medium	121	1463	118,557	107,692	59	24.45
Paraíba	Medium	68	930	50,328	31,935	27	96.33
Rondônia/Acre	Small	51	758	46,732	22,881	32	Na
São Paulo (Campinas City)	Large	370	3223	451,863	521,839	153	0.79
Maranhão	Small	56	466	46,238	50,809	23	4.92
Espírito Santo	Small	60	596	56,772	45,706	24	0.90
Goiás	Medium	86	1105	111,370	54,480	48	85.17
Alagoas	Small	50	494	43,327	68,453	22	0.48
Sergipe	Small	30	401	21,894	28,097	15	40.52
Rio Grande do Norte	Small	46	598	40,910	94,196	23	2.73
Piauí	Small	35	324	37,925	26,657	14	2.60
Mato Grosso	Small	73	802	57,174	39,054	38	11.28
Mato Grosso do Sul	Small	60	544	43,270	30,272	26	1.32

Source: <http://www.tst.jus.br/instaladas-e-nao-instaladas> retrieved on April 26, 2014 and [http://www.cnj.jus.br/images/pesquisas-judiciarias/Publicacoes/relatorio\\_jn2013.pdf](http://www.cnj.jus.br/images/pesquisas-judiciarias/Publicacoes/relatorio_jn2013.pdf) retrieved on June 20, 2014. Na, data not available.

### The adoption of the electronic lawsuit in the perspective of judges and managers

Overall, three strategies of developing and adopting innovations such as the electronic lawsuit in the labour courts were identified in the interviews. The first refers to a centralized, top-down strategy, in which the Higher Council of Labour Justice disseminates a particular idea or practice to be followed by the courts. In the second strategy, the development and adoption of innovations occur through inter-organizational relationships *via* discussions and agreements among courts interested in jointly developing or adopting innovations already consolidated in another court. The third strategy represents specific courts' autonomous initiatives to develop and adopt innovations.

The *incentive period*, a result of Act n° 11.419 of 2006 led to the diffusion of different electronic lawsuit's systems by the courts, through strategies that favoured the interrelationships between courts or through autonomous development. This period was fruitful for learning, however, increased the complexity for users of different courts and enabled the heterogeneity routines. The *standardization period*, beginning with Resolution n° 94 of Higher Council of Labour Justice of 2012 was characterized by a top-down strategy with centralized control of changes into a single electronic lawsuit for the whole country.

Interviewees reported that in general, the labour courts' adoption of innovation was preceded by tests conducted at a lower court. The possibility of testing an innovation and verifying

the changes it can create is regarded as decisive in the innovation adoption process (Rogers, 2003). However, interviewees criticized the speed with which the tests were performed for adoption of the electronic lawsuits at labour courts. According to an interviewee, "*another negative point that I find very relevant is the implementation of the system too quickly in a location that does not have enough infrastructure to implement the system.*" The rapid adoption of innovations may facilitate the reduction of barriers; however, innovation adoption must be followed by organizational policies and actions to prevent increases in other barriers.

Innovation in the judiciary is primarily related to changes and improvements in working processes, changes that "*have brought greater effectiveness in service delivery,*" according to one of the interviewees. Another point emphasized by the interviewees is that there are legal limitations to the judiciary's adoption or development of innovations. According to one interviewee, the courts are "*bound by the laws, the judiciary does what the law defines, the Judiciary does not make laws.*" In this sense, laws and regulations play a decisive role in the judiciary's strategies related to innovation adoption.

Decisions made by higher bodies of organizations do not guarantee the adoption and use of innovations (Boyne et al., 2005). The large-scale adoption of an innovation such as the electronic lawsuit by Brazilian labour courts should take into account that both internal and external users must accept the new system and that it is necessary to take steps to simultaneously overcome

Capability/Routine	Practices involved	Spectrum
Strategic planning	Alignment of strategic actions among different hierarchical levels of the courts Definition of objectives, indicators and performance targets Building administrative mechanisms, such as steering committees Identification of needs for improvement management practices	Corporate
Training and qualification	Planning and implementation learning and training mechanisms by the organization itself, through partnership or agreement among courts, and other organizations	
Management of individual skills	Diagnosis and identification of skill-development needs Definition of indicators and individual performance targets at work Performance assessment at work	
IT governance	Adoption of best practices related to strategic working planning, project management, management of information technology services and infrastructure, development of computational tools and information security management	Specific management
Relationship with the Brazilian Bar Association (BBA)	Communication about system interruptions and changes Engagement of BBA members in innovation-related committees	Inter-organizational relationships
Relationship with other labour justice organizations	Shared development of systems Information exchange Monitoring the innovation adoption process already used by another court Creating committees and joint commissions	
Partnerships with other organizations	Cooperation with other courts (electoral, federal courts, etc.) and universities Partnerships with other public agencies (central bank, government boards of trade, etc.) and commercial banks	

Fig. 1. Organizational capabilities and routines related to the electronic lawsuit in Brazilian labour courts.

resistance and increase the acceptance of innovation. Furthermore, it is essential to identify the capabilities and resources that are involved in the development and adoption process of innovation.

The capabilities and routines related to the electronic lawsuit that were identified by the interviews comprise specific organizational practices and have different scopes. These practices can be classified into capabilities involving court administration as a whole (hereinafter referred to as corporate capabilities), specific management capabilities related to IT, and capabilities that promote inter-organizational relations. Fig. 1 summarizes these capabilities and routines.

With the reform of the Brazilian judiciary that began in 2004, the dissemination of strategic working planning among courts was verified. Strategic planning is considered an organizational

innovation both in public organizations (Berry and Weschsler, 1995) and in the judiciary (Guimaraes et al., 2011). The interviewees considered not only that this routine was important to the development and dissemination of the electronic lawsuit but also that it contributed to build other routines. In addition, according to the interviewees, strategic working planning provides for large-scale administrative actions to be standardized and aligned with an organization's needs at different hierarchical levels, including between the labour courts and the Brazilian Council of Justice. Two IT managers highlight the dynamic between the planning levels, "the institutional strategic planning [...] unfolds in informatics with the IT strategic planning, which in turn will unfold in tactical and operational planning"; "We have our internal working planning, but always linked to the National strategy". The creation of interdisciplinary committees to

support working plans also has been identified by Greenwood and Bockweg (2012) in a study of the e-filing process in the United States federal courts.

The training activities were considered by the judges and managers interviewed as essential for the adoption of innovation because they could learn about processes focused on the operation and acceptance of the new technology, as stated by one interviewee: “we need to invest not only in technology but also in training”. Such activities constitute a capability that involves not only the court workers, judges and lawyers but also IT resources, including partnerships with other organizations. These actions are also found in other studies that evaluate the e-filing processes of other countries’ courts (Greenwood & Bockweg, 2012; Rosa et al., 2013; Velicogna et al., 2011, 2013).

The management of skills, which was more emphasized by the IT managers interviewed, is a routine with potential to contribute to the diagnosis of more accurate training and learning needs and a better use of human resources with the structuring of positions and offices.

Courts’ adoption of best practices related to ICT governance was strongly emphasized by all ICT managers interviewed as a consequence of the electronic lawsuit. The adoption of those practices aims to improve control and monitoring, transparency and increased dependence on IT (Tarouco & Graeml, 2011). The following IT management practices were stated: PMBOK (*Project Management Body of Knowledge*) in project management; ITIL (*Information Technology Infrastructure Library*) in IT service and infrastructure management; COBIT (*Control Objectives for Information and Related Technology*), through a set of procedures and guidelines to define and control objectives to measure the maturity of the IT area and its compliance with the organization; CMMI (*Capability Maturity Model Integration*) in the development of computational tools; and ISO 27001, in information security management. The perception of interviewees is similar to that found by Tarouco and Graeml (2011) in the private sector, in which the adoption of these practices is related to performance improvement with increased process control and improved services delivery. Studying a sample of 115 Brazilian companies, Lunardi, Dolci, Maçada, and Becker (2014) have found that ITIL and COBIT are among the most widespread IT governance practices and have generated substantial benefits such as improvements in working processes, improvements in security information, and project management, among others.

According to the interviewees, inter-organizational relations capabilities are important for the acceptance and institutionalization of the electronic lawsuit at the courts under study. These capabilities can bring system developers and users closer (Greenwood & Bockweg, 2012); in addition, pressures from other organizations may affect the adoption of technology (Zheng et al., 2013). In a study by Massukado and Teixeira (2008), relations with other organizations were the primary resources of partnerships to undertake specific projects.

The courts’ relationship with the Brazilian Bar Association (BBA) was found by interviewed to be an important capability because of its potential to contribute to decreasing lawyers’ resistance on using the electronic lawsuit. With the adoption of this innovation, the lawyer’s responsibility increased in the early

stages of the proceeding, as stated by one of the interviewees: “the lawyers were not concerned with the procedural class, they were not really concerned about the qualification, all that was performed by the court (. . .), with the electronic lawsuit [the lawyer] has to perform the entire qualification, enter all of the data.” Another interviewee observes as follows: “Think about an important part of the process working against [the adoption of the electronic lawsuit], so we involved the BBA in our Committee and did not have any disagreement with the BBA. I would say that in general, lawyers were supportive (. . .) an BBA representative is part of our Committee, participates, and issues opinions.”

Capabilities related to interaction with other organizations also helped in the adoption of the electronic lawsuit, such as sharing resources in jointly developing tools, training and learning opportunities, adopting complementary innovations and exchanging information. This is a process of learning from experience that may support the adoption of technology, as noted by Reiling (2009). The importance given to inter-organizational relations by the interviewees is close to what Kay (1995) defines as organizational architecture, *i.e.*, the distinctive capacity of relational contracts within the organization or between organizations.

#### *Adoption barriers and negative impacts of the electronic lawsuit*

The identification of barriers is a crucial issue for the adoption of an innovation. The main barriers to the electronic lawsuit at the courts studied were of a behavioural, organizational, structural and economic nature. Behavioural barriers are related to ease of use, perceived usefulness and cultural resistance. With respect to ease of use, the interviewees stated that in previous control systems for the lawsuit process, some routines were not yet available in the new system, such as an automatic mechanism for controlling judicial cases deadlines and tasks. This barrier was also identified in the adoption of e-government practices in Jordan (Alomari, 2014).

Perceived usefulness was associated by the interviewees with decreased productivity due to stability problems of the new technology, lack of maturity (which results in many new versions of the software), the use of hybrid systems and the response time for troubleshooting, as described by two interviewees: “We are not against the digital system, we are in favour of it, provided that at least it is equal to our [previous] system, otherwise our productivity is compromised along with our [computer] resources,” “[the electronic lawsuit] was temporarily suspended because the current chief justice [of the Court] believes that the electronic lawsuit (. . .) needs more [technical] stability to provide greater security for users, for the judicial system itself.” The perceived usefulness reported herein is similar to the relative advantage described by Rogers (2003) and found in the study by Alomari (2014). If an innovation does not have clear advantages over the previous system, the probability of acceptance may decrease. As claimed by Tidd (2010), previously adopted innovations can hinder new adoptions in a manner that was obvious in interviews with ICT managers, who reported that the adoption

of the electronic lawsuit in new courts was an easier and faster process.

The interviewees associated cultural resistance to the generation gap, *i.e.*, older court management staff and judges would be more likely to resist the adoption of an innovation. The effects of age in the adoption of innovation have been studied and suggest that young workers have a more favourable attitude to the use of a new technology (Morris and Venkatesh, 2000) and that age would be a moderating variable in the adoption of an innovation (Venkatesh, Thong, & Xu, 2012).

Innovations in information systems, such as the electronic lawsuit, are associated not only with technical features but also with organizational and administrative matters (Mustonen-Ollila and Lyytinen, 2003). Organizational barriers refer to strategies of adoption and changes in working processes. The top down process of building the electronic lawsuit studied slows improvements on it and may discourage the trial-and-error process that is very important for the generation of new solutions. In contrast, however, top down actions contribute to standardizing the system. If on the one hand, standards can block the process of innovation, they are necessary along with the creation of additional innovations, to avoid hindering adoption and diffusion (Carboni & Velicogna, 2012; Tidd, 2010).

Mandatory adoption can constitute a barrier to innovation. Venkatesh, Morris, Davis, and Davis (2003) claim that there may be differences between voluntary and mandatory adoption. The interviewees indicate that mandatory adoption is a factor that can bring resistance and slow down the adoption of the electronic lawsuit. However, if each court had the autonomy to build and adopt its own system, the resulting multiplicity of e-filing models would hinder synergies and control. Another point frequently stated by the interviewees is the use of hybrid systems, *i.e.*, courts with simultaneous printed and electronic filing systems and in some cases, two versions of the e-filing software, which can contribute to rework and negatively impact judicial performance. According to the complexity factor suggested by Rogers (2003), the ease of transition between systems is a key factor in innovation adoption. Complexity is also one of the factors found by Alomari (2014).

Regarding to structural barriers, infrastructure availability problems have also been reported. These barriers were mainly present in courts in Brazil's North and Northeast regions and in the Northern region of Minas Gerais state, which has electricity and Internet connection problems. One interviewee reports that *"the main difficulty that the North region experiences is the issue of technological infrastructure. We do not have the electronic lawsuit in all of our courts because we are waiting for the technological infrastructure and data connection to implement it."* Public infrastructure-availability policies for systems such as electricity and the Internet (Jaeger & Thompson, 2003; Kuk, 2003; Rosa et al., 2013) can help lower this barrier.

According to the IT managers interviewed, the economic barrier is linked to the budget for investing in technological hardware upgrades, workstations, and security, among other things, and funding both development and other activities (for example, the training and learning of employees about managing

the electronic lawsuit, hardware and system maintenance). This investment is critical to achieving innovation.

One criticism of the innovation adoption studies is that they generally assume that adoption will result only in positive consequences (Rogers, 2003). The negative consequences of the innovation studied, according to the interviewees, are presented below.

The adoption of the electronic lawsuit was considered a radical change in lower courts that had been working with fully printed filings, and in some courts, there were changes in the system or workflow processes related to hybrid systems. The interviewed ICT managers understood that the adoption of that innovation initially produced an increase in the amount of paper and printing resources because court workers and judges still felt they need to print documents. These aspects, added to changes in working processes and hybrid systems, contributed initially to slower court proceedings and increase work.

The adoption of ITs is associated with the emergence of new threats to workers' health (Mendes & Dias, 1991; Pacheco, Pereira, Pereira, & Pereira Filho, 2005). Some factors, such as pressure to achieve goals, system instability, and the speed of procedural actions, may have had an impact on the health of both court workers and judges. There are reports of increased problems and occupational diseases, for instance repetitive strain injury (RSI), work-related musculoskeletal disorders (MSDs), problems with the cervical spine, vision problems, sedentary lifestyles, absenteeism, increased stress, dissatisfaction, sadness, overwork and difficulty in disconnecting from work. According to one of the managers interviewed: *"I have six workers today with problems related to repetitive strain injuries, some with sight problems (. . .) some workers and judges are in the process of going on medical leave."*

Brazilian labour courts have taken action to manage these problems, as highlighted by one interviewee: *"when the local Regional Labour Court found [occupational health problems], it distributed eye drops, instituted occupational fitness, however (. . .) on a daily basis, we are not able to remember to use eye drops (. . .), so our sight suffers a lot, as does our typing."* With respect to increased working hours resulting from telework, one interviewed manager states: *"I sometimes work until dawn (. . .) is that an advantage? Compared to the past, in a certain way, yes, because now I can perform some tasks at home, I do not need to be physically in the office to perform these tasks (. . .) but it also has this negative side, it can cause illnesses because of that."*

#### *Adoption facilitators and positive impacts of the electronic lawsuit*

The facilitators of the adoption of the innovation under study can also be classified into the behavioural, organizational, structural and economic dimensions. The behavioural facilitators highlighted by interviewees were as follows: perceived usefulness, *i.e.* the innovation can enhance or at least maintain productivity at the previous level; ease of use, because the required effort to perform tasks and to follow up the cases is reduced. As previously discussed, the interviewees compare the



electronic lawsuit with the systems adopted earlier; for example, the lower courts that used a printed system adopt innovation faster.

Regarding to organizational dimension, the managers and judges interviewed highlighted as facilitators capacity building and training actions, which were also stated as important capabilities in the adoption of innovation. One of the reported aspects refers to building (through training activities) multidisciplinary teams in which technical IT and judicial management issues are discussed. The ICT and court managers interviewed listed the following facilitators: (1) the implementation targets of the electronic lawsuit accelerate adoption; (2) the creation of committees and working groups helps to monitor, control and suggest improvements; (3) the creation of an implementation team can increase the acceptance of the innovation because it supports the structuring of new processes and activities in the lower court; (4) communication actions are important, especially in case of problems, downtime or changes in the system; (5) user support is considered a critical facilitator at the time when the system is still under consolidation; and (6) the support and adherence of internal users and the involvement of external users such as the presence of Brazilian Bar Association in committees related to the electronic lawsuit.

In the structural dimension, interviewees pointed to Internet access as a facilitator. In the economic dimension, investments were mentioned in information security and availability, including the creation of safe rooms, server redundancy, power generators, and system clones, among other strategies; data processing centres; the number of computers and other hardware, along with periodic updates and workstations with two monitors.

The positive impacts of the adoption of the innovation under study concern both perceived usefulness and ease of use. The first relates impact to the systemic view of the process, *i.e.*, viewing the procedural flow and the process as a whole in real time; system reliability, *i.e.*, the difficulty of forging and losing documents; and ease of access to information from any place, day and time. With respect to the second category, the interviewees mentioned both that the innovation adopts an easier and faster search engine for legal proceedings and that electronic signatures can be easier used.

The organizational impacts caused by the innovation studied are as follows: greater transparency and publicity of court actions because the parties have real-time access to decisions; speed because of eliminated steps in the flow and faster procedural times; standardized routines, which provide greater ease and speed, reduced waiting, measurement and comparison times between units, and monitoring of the lawsuit history by the courts. It was also mentioned by judges interviewed that the electronic lawsuit both allows for easy information retrieval and contributes to the unification of decisions, in addition to speeding up case processing. This greater speed, in turn, increases the workload of the judge, who must judge more cases. In addition to these impacts, the innovation contributes to the emergence of other organizational and technological innovations, such as electronic administrative proceedings, administrative and judicial information systems, and teleworking, among others.

The study also found that the interviewees had major concerns about health and quality of life at work due to the electronic lawsuit. The possibility of teleworking or telecommuting, already regulated by some courts (including the Higher Labour Court), has been received positively, according to the interviewees. This is an organizational innovation that came from the electronic lawsuit, and the interviewees understand that it can result in higher labour productivity. The decrease of diseases such as allergies was also reported because of the reduced handling of printed proceedings.

The economic impacts of adopting innovation were also stated by the interviewees, including the decreased use of physical space at the courts; the reduction of material resources, such as ink, printers and paper; and the reduced movement of judges and workers within the court because there is no physical transportation of proceedings.

The adoption of the electronic lawsuit is highly dependent on computer system and information security availability, both of which have direct impacts on the court activities. Thus, the responsibility and the importance of IT in the courts have increased, which generates expectations related to “availability, continuity assurance, security, efficiency, delivery and support quality, controls, compliance and consistency” (Tarouco & Graeml, 2011, p. 8). Another important technological aspect that impacts judiciary performance is the interoperability of the electronic lawsuit with other systems, such as the electronic communication system amongst financial and banking institutions. This system allows the Brazilian Labour Courts to block, unblock and transfer amounts electronically between bank accounts; the information exchange system between the judiciary and tax administration bodies; the exchange of information, in electronic format, between the judiciary and traffic agencies and boards of trade, among other connections with controlling bodies. These innovations show the importance of the interconnection of these new tools with the electronic lawsuit and the impact on judicial performance, as emphasized by one of the interviewees: “*it is worthless to impose a sentence if the debtor does not pay (. . .) it is worthless having a sentence imposed if this sentence is not enforced, this new objective of the justice system has been realized through these tools.*”

## Conclusions

The development and adoption of the electronic lawsuit in Brazil’s labour courts indicate that innovation has undergone an evolution that is reflected both in the laws governing the issue and in the adoption processes of the labour courts and tribunals. Three strategies of development and adoption of innovation were identified: centralized in higher bodies; spontaneously among courts; or internal to the organization.

The capabilities related to the adoption of electronic lawsuits were classified by their spectrum into the following categories: corporate, which involves changes in overall court resources; specific IT management capabilities; and inter-organizational relationships. The institutionalization of best practices at courts was noted; it has previously been identified in other studies of the judiciary and the private sector. According to the

interviewees, these routines are essential to the successful adoption and alignment of actions not only between the different hierarchical levels of planning and implementation of working processes but also among the labour courts.

The barriers and facilitators that can both contribute to reduced resistance and accelerate the acceptance of innovation were also discussed. The barriers and facilitators were classified into behavioural, organizational, structural and economic dimensions. The electricity and Internet infrastructure and budget are both facilitators and barriers, depending on availability. The perception of usefulness and ease of use of the new technology were perceived both as barriers and as facilitators, in addition to being related to the innovation's positive impacts. The use of hybrid systems in the case of printed filings – and in some cases in the context of the current system of electronic filing concomitantly with previous systems – may increase complexity and was perceived both as a barrier and as a negative factor. The study highlights the importance of the relationship of public infrastructure policies and the provision of services based on ICTs.

Among the impacts related to the electronic lawsuit, it is noted that the innovation has contributed to the development of other technological and organizational innovations and changes in courts routines. It is also observed that there was increased responsibility for lawyers and ICT managers and an increase in the flow of proceedings reaching the decision point, which also leads to higher work pressures for judges. Court managers and judges' concerns about health issues and quality of life at work were also detected. Because the development and adoption of innovation are in progress, these results represent important feedback for those responsible for the adoption of the innovation.

From both theoretical and empirical perspectives the results of this study can help to build some kind of standardized questionnaire to assess courts conditions upon the adoption of innovation such as the electronic lawsuit. This scale could support studies with great samples of courts and to collect the perceptions of several actors such as judges, staff managers, lawyers, prosecutors, policy makers and citizens about innovation adoption in courts. In this sense it would be possible to have generalized data to build theory.

One limitation of this study is that the interviews were taken at a particular moment in time. It is suggested that future studies on this theme (a) use a longitudinal approach to understand variations in responses to innovation at different points in time; (b) assess inter-organizational relationships through other theoretical lenses because those relations were seen as relevant routines – however, this study focused on internal resources; (c) use quantitative methods, for example, to develop productivity indices that address innovation, validate specific questionnaires for the judiciary context and conduct experiments for a better understanding of behavioural relations; and (d) analyze the development and adoption of innovation in other judicial fields and courts.

### Conflicts of interest

The authors declare no conflicts of interest.

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