Spent Convictions and the Architecture for Establishing Legal Semantic Workflows

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Abstract. Operating within the Data to Decision Cooperative Research Centre (D2D CRC), the authors are currently involved in the Integrated Law Enforcement program and the Compliance through Design project. These have the goal of developing a federated data platform for law enforcement agencies that will enable the execution of integrated analytics on data accessed from different external and internal sources, thereby providing effective support to an investigator or analyst working to evaluate evidence and manage lines of inquiries in an investigation. Technical solutions should also operate ethically, in compliance with the law and subject to good governance principles. This paper is focused on the Australian spent convictions scheme, which provide use cases to test the platform.

Keywords. Legal natural language processing of legal texts, law enforcement investigation management, spent convictions, Compliance through Design

1. Introduction

This paper presents ongoing research of the Australian government-funded Data to Decisions Cooperative Research Centre (D2D CRC).[2] It focuses on specific spent convictions use cases selected by the Australian Criminal Intelligence Commission (ACIC) to produce a proof of concept on Compliance through Design (CtD) modelling. This will be developed jointly with Guido Governatori (Data61, LegalRuleML), Mustafa Hashmi (survey on CtD) and Víctor Rodríguez-Doncel (Polytechnic University of Madrid, Natural Language Processing).

We have introduced the subject in previous works [1] [2]. This paper, which aims to share further insights and research, is structured as follows: The first section outlines the Australian spent convictions scheme and describes some features and conceptual problems. The second section offers an overview of the platform, legal information workflows, compliance services and the hub of knowledge. The closing section contains

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some trends for our immediate work on compliance and the spent convictions regulatory model.

2. Australian spent conviction schemes

Generally, information about a criminal conviction in a court of law will be recorded and the criminal conviction remains part of a person's record unless the conviction is overturned, quashed or annulled. Not allowing a person to escape the burden of convictions in the past was deemed unfair by Australian authorities and as impacting negatively on the rehabilitation of criminals [3]. As a result, Australian jurisdictions, like many other countries [4], introduced spent conviction schemes, regulated by different laws and rules in the different Australian States and Territories and at a Commonwealth (federal) level.

In general, a "spent conviction" is a conviction which becomes hidden from public view after a set period of time. Once a conviction has become spent, the convicted person may generally legally answer "No" when asked whether he or she was previously convicted for that offence.

A blanket deletion of criminal records would cause problems as the conviction information may have relevance later or in specific contexts. As a result, the information remains on the record but shielded from publication or use, except in a small number of defined cases where authorities or other interested parties would need access to the complete criminal record of a person. Australia has, for example, a Working With Children scheme that requires all youth workers to apply for and undergo a Working With Children check before they are allowed to work with young people.[3] As part of the background checks on an applicant, access to spent conviction data is required to ensure that someone with historic child molestation convictions are not approved under this scheme without appropriate consideration of the facts [14] [15].

The Commonwealth and each State and Territory have their own spent conviction legislation [5] [6] [7] [8] [9] [10]. The exception is Victoria that regulates general spent convictions through a Victoria Police information release policy rather than a law [13] [15].[4] This means in practice that a high degree of discretion is exercised in Victoria.[5]

3 *Working With Children Check* (WWCC) is a background check requirement, assessing the criminal record of those working or volunteering in child-related work. See https://aifs.gov.au/cfca/publications/pre-employment-screening-working-children-checks-and-police-checks.

4 Victoria Police Information Release Policy (September 2017). See also the specific scheme for historical homosexual convictions (expungement) in Part 8 of the *Sentencing Act 1991* (Vic).

5 "Victoria is the only Australian jurisdiction without legislation that provides for convictions to be spent. Instead, the information on a person's criminal record is governed by a Victoria Police information release policy. Under this policy, if an adult has been found guilty of an offence within the past 10 years, Victoria Police will disclose all prior findings of guilt as part of a criminal history check. This means that any crimes that a person has been found guilty of, even where that person did not receive a conviction, will still show up on their record. Victoria Police will also release information on pending charges where a person has not yet been found guilty." [13].

A significant implementational challenge lies in the differences in the rules that apply in the spent convictions schemes of the States, Territories and the Commonwealth. For example, South Australia excludes serious sex offences from becoming automatically spent and their *Spent Convictions Act 2009* have detailed provisions distinguishing between different types of sex offences.[6] Under the Commonwealth scheme however the conviction of a person convicted of a federal sex offence becomes spent if the person was not sentenced to imprisonment for the offence, or was not sentenced to imprisonment for the offence for more than 30 months, and the prescribed period after conviction has ended.[7] Most jurisdictions use whether a term of imprisonment was imposed and the length of any such term as proxies for the seriousness of the offence. The terms of imprisonment applied, however, differ. At the Commonwealth level it is 30 months while, for example, in New South Wales, it is 6 months or less, subject to a number of exceptions.[8] A prescribed crime-free period – generally 10 years for adult offenders - must have expired after the conviction, though in the Australian Capital Territory that period only commences after the person's release from prison.[9]

Even the ambits of the schemes differ. In terms of their information release policy, Victoria Police releases criminal history information on the basis of findings of guilt as well as details of matters currently under investigation or awaiting court hearing. The spent conviction scheme of Western Australia, however, focuses on convictions and not on findings of guilt. "Conviction" is defined as a conviction incurred by a natural person for an offence against the law of this State or of a foreign country" by section 3 of the *Spent Convictions Act 1988* (WA). The Commonwealth scheme, on the other hand, is broader. According to section 85ZM of the *Crimes Act 1914* (Cth) a person shall be taken to have been convicted of an offence if:

> (a) the person has been convicted, whether summarily or on indictment, of the offence;
> (b) the person has been charged with, and found guilty of, the offence but discharged without conviction; or
> (c) the person has not been found guilty of the offence, but a court has taken it into account in passing sentence on the person for another offence.

In Victoria, only the first two of the three parts of the Commonwealth definition would be covered by its spent conviction scheme while only the first part (an actual conviction) would be covered by the Western Australian scheme.

In practice, tools such as comparative tables and flow charts, are essential to navigate the complexity of the Australian spent convictions landscape [12] [14].

6 See s 3, 5(2) and 8A of the *Spent Convictions Act 2009* (SA). See similarly s 7(1) and (4) of the *Criminal Records Act 1991* (NSW) for a list of sexual offences that are excluded from the spent conviction scheme of New South Wales.
7 S 85ZM(2)(b) of the *Crimes Act* 1914 (Cth).
8 S 7(1)(a) of the *Criminal Records Act 1991* (NSW).
9 S 13(2)(c) of the *Spent Convictions Act* 2000 (ACT).

2.1. National Police Checking Service

Exchanges of criminal records data among the jurisdictions in Australia are coordinated by and through the Australian Criminal Intelligence Commission (ACIC). It manages the processes and provides the system through which Australian police agencies and accredited bodies submit nationally coordinated criminal history checks.

The ACIC operates the National Police Checking Service that assists organisations to screen and make informed decisions for example about prospective employees and volunteers, visa and citizenship applications and work-related due diligence relating to national security. The service is used by 244 accredited agencies and bodies. During the period 2016–17 4.75 million checks were processed, and 1.42 million checks were referred to police agencies for further assessment to determine whether the information may be disclosed in accordance with their spent convictions legislation and/or information release policies [11]. The extensive number of checks referred to police agencies is directly linked to the complexity of the regime and inconsistencies among the different jurisdictional schemes, discussed in 2 above [11].

2.2. Automated solution desirable

Figure 1 shows a decision flow chart for the Commonwealth spent convictions scheme produced by the Office of the Australian Information Commissioner to guide decisions of individuals.[10] The flow chart, which embodies an interpretation of the law but is not a legal instrument in its own right, indicates the types of key determinations required to reach a correct conclusion on the reach of the Commonwealth scheme.

It is clear that an automated solution would be ideal to support compliance with spent conviction rules. The volume and complexity cannot be handled efficiently by humans only, especially where the majority of questions would not necessarily be complex. Such a solution will require access to a range of sources, including for example relevant: (i) Legislation, (ii) Regulations detailing legislative requirements, (iii) Policy documents, (iv) Judgments of courts as well as decisions of the Administrative Appeal Tribunal, (v) and prior spent conviction release decisions.

[10] https://www.oaic.gov.au/individuals/privacy-fact-sheets/general/privacy-fact-sheet-41-commonwealth-spent-convictions-scheme

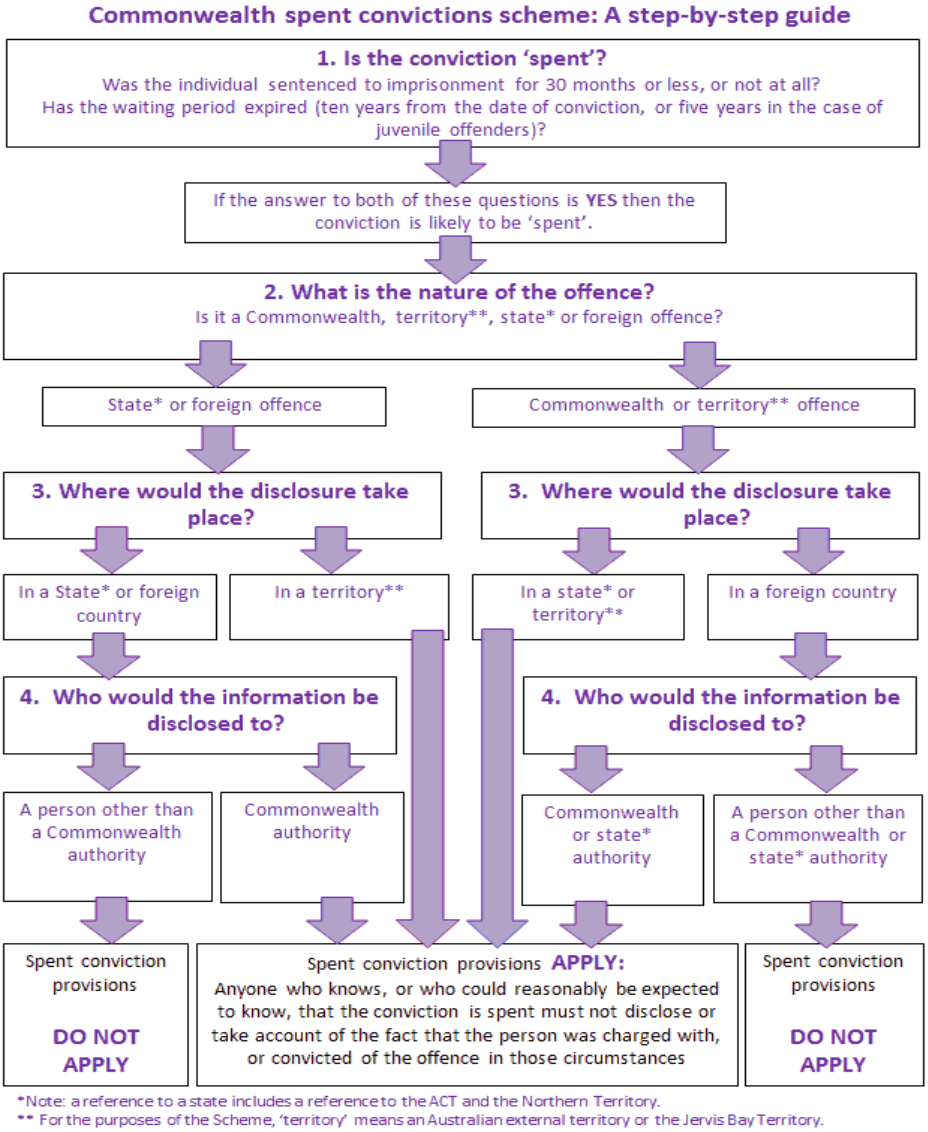

Fig.1 Spent Convictions scheme. Source: Office of the Australian Information Commissioner.

2.3. Focus of the Compliance through Design project

The use cases at the heart of the Compliance through Design project are centred around the Commonwealth spent conviction scheme.

"Scheme" is used in this context to refer to the totality of the hard and soft law rules, structures and cultures that govern, enable, operate and shape the decisions regarding the denial or release of information regarding spent convictions. The scheme itself is not law and is not confined to the law but embodies the whole framework of rules, cultures and structures relevant to spent convictions. Such schemes are identified to cluster, simplify, convey, discuss, interpret and analyse policy and implementational frameworks, including legal frameworks.

The project focuses on the Commonwealth spent conviction scheme embodied in Part VIIIC of the *Crimes Act 1900* (Cth). The complex definition of a spent conviction under this scheme is summarised as follows by the Office of the Australian Information Commissioner:

> A "spent conviction" is a conviction of a Commonwealth, Territory, State or foreign offence that satisfies all of the following conditions: (i) it is 10 years since the date of the conviction (or 5 years for juvenile offenders); AND (ii) the individual was not sentenced to imprisonment or was not sentenced to imprisonment for more than 30 months; (iii) AND the individual has not re-offended during the 10 years (5 years for juvenile offenders) waiting period; (iv) AND a statutory or prescribed exclusion does not apply. (A full list of exclusions is available from the Office of the Australian Information Commissioner).[11]

The scope of rights and obligations under the scheme varies depending on factors such as: (i) whether the conviction is for a Commonwealth, state or foreign offence, (ii) who requires the information and for what purpose, (iii) and where the person requiring the information is located.

A a practical level a range of questions arise in relation to the spent conviction scheme, for example: Has a person been convicted for purposes of the scheme? Has that conviction become quashed or has the person been pardoned? Has the necessary waiting period expired? Have any further convictions been handed down since the initial conviction? Do any exclusions apply? What are the privacy rules that apply and the ethical and legal implications relating to privacy and other rights of an individual if information that should not be released, is released?

To extract or elicit a full set of modelling requirements or constraints can become a complex task, because interpretation and human decision-making enter into several stages of the information workflow. This is the reason why the approach of legal Compliance through Design (CtD) can be appropriate at the implementation level to counter-balance and complement its semantic processing.

In addition to the rules of the scheme, there is a body of scholarly criticism of spent convictions schemes, especially their contents and their operation [15] [16] [17] [18] [20] [21]. It is important for the project to engage the scholarly comment, but such engagement falls outside the scope of this paper. It will however be discussed in a following paper that will provide a more detailed analysis of the scheme.

[11] https://www.nationalcrimecheck.com.au/resources/spent_convictions_information

3. Overview of the architecture

3.1. Purpose

The project aims to develop a platform where Compliance by Design (CbD) and Compliance through Design (CtD) principles can jointly guide work processes and decision-making. For this purpose, an explicit compliance element complements the information management and process management element that are commonly found in human-in-the-loop information systems to ensure that relevant policies, rules, and associated legal constructs are available and enforced by the system where that is appropriate.

The conceptual architecture for the system is depicted in Figure 1. The user interface layer implements a consistent user-facing portal for searching and accessing information and for interacting with the workflows embodied within the system. Automation Services drive the execution of business processes, whereas Compliance Services assess the compliance of process executions with relevant rules. The process automation and compliance mechanisms build upon the Knowledge Hub Services and the Search Services that provide data access and discovery. Platform Services offer overarching functions for logging, monitoring, and security complete the architecture. The role of the major elements is described in the following paragraphs. Details about the technical implementation of data stores and data processing pipelines are beyond the scope of this paper and are presented in [1] [2].

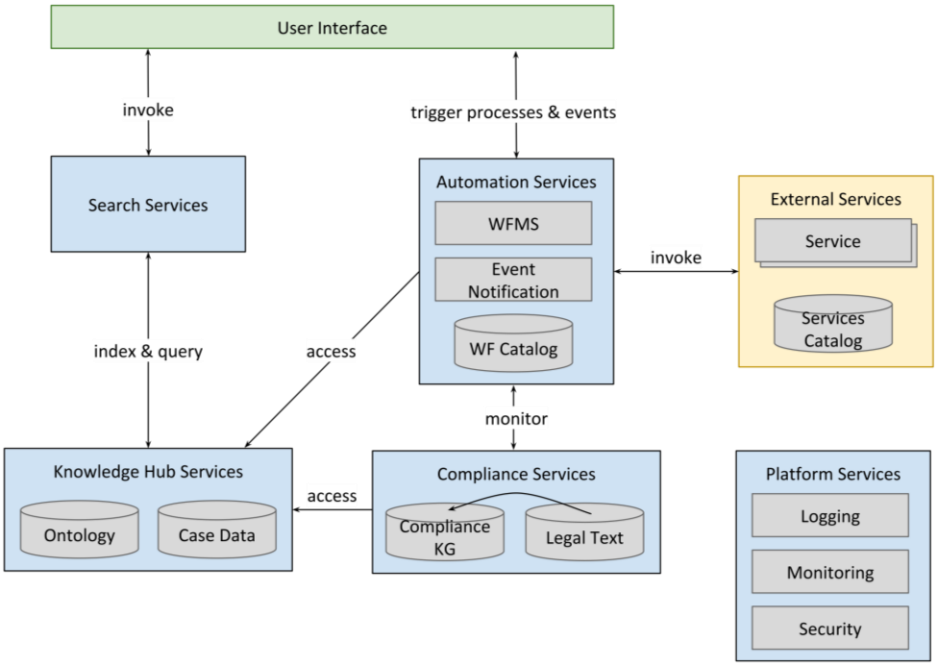

Fig. 2. Architecture overview

3.2. Knowledge Hub and Search Services

The Knowledge Hub Services aim to serve as a single point of access to the data maintained by the system, whereby services for ingesting, accessing, processing, and linking data support the data management lifecycle of the applications built upon the platform. The pool of data can be exposed in the form of a domain-specific knowledge graph which comprises entities, their attributes, links, augmented with provenance and meta-data.

The organization of the knowledge graph is governed by an explicit ontology which describes the types of elements, links, and meta-data that may occur in the knowledge graph. In addition to supporting search and data organization, the semantic models embodied in the ontology enables the platform to associate data with the relevant process elements in the Automation Services element and provide an anchor for identifying relevant rules, policies, and related information within the Compliance element of the architecture. The Search Services element provides functions that support the discovery and access of information provided by the knowledge hub and includes functions for browsing, keyword search, and semantic search expansion using the ontology.

3.3. Process Automation Services

The *Automation Services* address requirements related to workflow definition, execution, and automation. The technology underlying this element rests on process templates that are instantiated in the context of a specific workflow scenario. Our current implementation rests on a Business Process and Notation (BPMN) workflow engine for workflow execution with embedded explicit decision models (DMN), and an event notification mechanism that relays relevant business events to the process engine. The automation services use mediators to *External Services* that invoke and access to external systems.

A library of workflows, tasks, and information objects complemented with rules that govern process execution can be created and used to support the execution of the system. Configurable process templates specify the dependencies between activities, whereby process parameters determine the fillers for placeholder roles, data elements, and concrete sub-processes that implement hierarchical process steps. For example, business rules embedded in process templates select appropriate sub-processes tailored for communicating with different external organizations (to address variety in required information and technical submission procedures) and determine decisionmakers for manual steps. This configuration step is based on information in the knowledge graph capturing the context of the process, organization structure, and external parties' systems. Information that cannot be acquired automatically is supplied by the user.

Although process configuration and rule-based execution can accommodate defined processes and variations, manual intervention may be required if exceptions arise, if conflicting or ambiguous business rules apply, or if human interpretation is desired. Our approach to automation aims to detect this and fall back to human intervention. This hybrid strategy simplifies the approach as exceptional cases do not need to be modelled in detail for each process. In the context of law enforcement investigations, we hold that a semi-automated approach is sufficient, provided that all actions and responses are duly captured on a timeline in a log. However, simply abandoning all process governance

would be inappropriate in most cases. Instead, a CtD approach can be employed to inform the decision makers and help them arrive at compliant decisions.

3.4. Compliance Services

The *Compliance Services* provide services related to checking and enforcing compliance of workflow executions with set policies, rules, and the law. It interacts with the Automation Services to inform the configuration of process templates, to detect compliance violations and enforce compliance where possible based on the events that occur in workflows and the related data in the knowledge hub.

The compliance module includes a *Compliance Knowledge Graph* that links processes, actions and events, and data elements in the Knowledge Hub to the relevant compliance-related knowledge. In the simplest form this Compliance Knowledge Graph captures the compliance rules that apply to events and data elements in each process. These rules can be interpreted by the Compliance Services to assess compliance and impose decisions on the process configuration and execution by the Automation Services for CbD purposes. Furthermore, the provenance of each entry in the compliance module is maintained to enable users to discover and review relevant information for CtD purposes.

Although proactive compliance-enforcing measures could in principle be implemented by embedding decision rules within each process template, separation of the compliance mechanism from the business process execution model is advantageous, as a simple process model that is loosely coupled with a separate compliance element simplifies both elements. Moreover, advanced compliance mechanism that include for example, reasoning about norms, detecting anomalous events from using artificial intelligence techniques, and compliance models that may have been acquired from natural language text can be integrated and validated more easily in a modular architecture.

The architecture as described so far rests on the assumption that the relevant procedures and policies are known, well understood, and that they have been expressed in the form of semantic models that the machine can interpret. Although semantic models may be devised using natural language processing techniques [6], challenges remain in the disparity between rigid formal representations (e.g., formal modal logics) and the often context-dependent interpretation of legal texts. Here, a Compliance through Design approach is needed. The Compliance module enables users to browse and retrieve compliance-related information, such as rules and legal texts, that can inform their decision-making. This could be done encompassing CtD requirements to improve the quality and relevance of legal information.

To demonstrate that compliance by/through design is indeed possible for complex legal scenarios, such as the spent convictions scheme outlined in this paper, the workflow steps and associated and compliance monitoring functions will be implemented in an automated system. The tasks required to accomplish this include the analysis of relevant legal texts and translation of the natural language text into formal models; the definition of the workflow for spent conviction request processing and the variation points within the workflow as well as events related to compliance verification; the implementation of the workflow in an automated workflow management engine; and implementation of a reasoning engine that verifies the workflow execution with respect to the formal compliance model.

At the time of writing the legal texts pertaining to spent convictions are being analyzed and translated into formal models in that will enable automated reasoning about the rules that govern the spent conviction disclosure process. Our formalism of choice is LegalRuleML [22] as this language is formally precise and it includes advanced ideas, such as defeasible reasoning, which are essential for representing legal rules in the presence of conflicting and incomplete information.

Concurrently, models of the process and data necessary to assess the compliance conditions are being defined. The process model captures the workflow the users of the system would follow when ascertaining SC disclosure requirements, whereas the data model specifies the data elements (and type information) that describe the concrete case that is being assessed. The process model will be implemented in an automated workflow management system (such as Camunda[12]) which will be linked to a data store in the Knowledge Hub component for information access. The process implementation will rely on a separate compliance verification module to verify that the workflow execution is compliant with the rules that apply to the specific case. Although LegalRuleML is a powerful language that can represent complex legal rules, it is a relatively new language that is not yet well supported by automated reasoning systems.

Although formal semantics and translations to other formal systems (such as Defeasible Logic) have been devised [23], extensions to existing reasoning systems may need to be made to be able to correctly interpret the entire set of compliance rules for SC formulated in LegalRuleML. A suitable implementation technology will be chosen for the compliance module based on the nature and complexity of the compliance rules pertaining to the SC scenario, and the reasoning engine will be linked with the process engine to support reasoning about compliance.

The prototype system will serve as a demonstrator for automated legal compliance verification. Experiments with the demonstrator will be conducted to assess the effectiveness and efficiency of the automated compliance mechanism and identify areas where future research may be necessary to further improve compliance monitoring and verification in the legal context.

[12] https://camunda.com/

4. Future work: Compliance processing and SC regulatory model

We are conducting at the moment several subprojects with coordinated objectives, reflected on CRC Deliverables: (i) the creation of a minimal portal for the search of legal information related to spent convictions through heterogeneous publication formats [27], (iii) Legal RuleML [28] modelling, (iii) a survey on the differences between Compliance by and through Design [29] (iv) steps for the interpretation of spent conviction schemes [30], (v) potential interpretations of elements of Part VIIC of the *Crimes Act 1900* (Cth) [31], and (vi) Australian case law on spent convictions [32].

This will inform a clearer definition of what legal compliance may consist of, compared to regulatory compliance [30].

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