## Workers' Resistance across Time and Space<sup>1</sup>

Presenting the HUB Global Labour Conflicts

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#### Abstract

The HUB Global Labour Conflicts provides scholars, students, activists, and other interested audiences with historical and contemporary data on workers' collective actions. The project is hosted by the International Institute of Social History in Amsterdam and aims to be a central resource for freely accessible labour conflict data from all over the world. By discussing how the HUB has evolved since its launch in 2015, this article reviews its accomplishments so far, its current limitations, and potential areas for expansion. From this, we outline the ambition to make the HUB more global and thus even more strongly embedded within ongoing debates in global labour history. Doing so, we hope to introduce new audiences to the available data or encourage you to contribute to the project.

### Introduction

On Friday, March 25, 2022, the doors of one hundred Dutch liquor stores closed as the workers went on strike. In preparation for the events, the union leader posed a question on Twitter: 'When was the last time in the Netherlands that so many shops were closed due to a strike?'<sup>2</sup>

<sup>1</sup> This article was published in Swedish in Arbetarhistoria 183:3 (2022).

<sup>2</sup> Linda Vermeulen [@lindavermeulen], 'Vrijdag meer dan 100 (!) winkels van #Gall&Gall dicht. Ongekend. Wanneer is het nou in Nederland voor het laatst gebeurd dat door een staking zoveel winkels dicht waren? Ik vraag het even aan een paar kenners: @histo\_in\_rusto @JanWillemDieten @Janw\_ Compaijen @JeroenSpr', 24.03.2022. Retrieved 20 April 2022.

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By collecting and sharing these details about past actions, she hoped to motivate the workers to act.  $^{\scriptscriptstyle 3}$ 

This interest in the history of workers' actions is not limited to the Netherlands alone. All over the world, unions, strikers, and journalists regularly show an interest in historical labour disputes. Like the tweeting Dutch union leader,<sup>4</sup> they are curious about previous strikes in their sector or country. Or they want to know whether a so-called new form of action is actually new and has not already occurred at another time or place.<sup>5</sup> Others have used global comparisons in discussing, for example, the major actions in India in November 2020. Media described this general strike as 'the single largest protest in human history'.<sup>6</sup> All these cases reflect the widely shared interest to learn more about why and how labour disputes occur across the globe.

While these comparisons in time and place seem easily made, they require significant oversight on the collection and development process to make labour dispute data accessible. To study labour conflicts, one must make use of both qualitative and quantitative data. That is where labour historians step in, as they are interested in how often workers went on strike and how repertoires of labour militancy adapted to changing economies. Thus, Amsterdam's International Institute of Social History (IISH) hosts the HUB Global Labour Conflicts to analyze and compare workers' actions across time and space. The HUB provides both academic researchers as well as the interested public and activists with historical and contemporary data on workers' resistance.

Throughout the seven years of its existence, the HUB has seen a new generation of historians taking over and building upon the work done by its creator. It is time to reflect on what the HUB has achieved and what can or must still be done.

3 Linda Vermeulen [@lindavermeulen], 'Super interessant, Sjaak! Ik deel deze info met de stakers van vandaag. En heb je ook foto's van die acties?', 25.03.2022. Retrieved on 20 April 2022.

4 Linda Vermeulen [@lindavermeulen], 25.03.2022

5 Picket-lines' bij supermarkten. Dienstenbond introduceert voor Nederland nieuwe actievorm', *Trouw.* 26.05.1989, 7; 'Vakbond terug naar winderige werkplek; 'We moesten uit vergaderzaaltjes', Organizing na stakingen van schoonmakers breed ingezet'. *De Telegraaf.* 24.04.2010, 25; D. Harwell, 'Kellogg's is pushing to replace striking workers. A Reddit 'antiwork' mob is fighting back', *The Washington Post.* 16.12.2021 Retrieved from https://www.washingtonpost.com/technology/2021/12/16/reddit-kellogg-strike-antiwork/. Retrieved 20 April 2022.

6 N. Pahwa, 'India just had the biggest protest in world history', *Slate.com*. 9.12.2022. Retrieved from https://slate.com/news-and-politics/2020/12/india-farmer-protests-modi.html. Retrieved 20 April 2022.

### The origins of the HUB

In 2015, the IISH in Amsterdam launched the HUB Global Labour Conflicts. The HUB was developed by the Dutch labour historian Sjaak van der Velden, who collected data from various sources on strikes and work stoppages in the Netherlands for years.<sup>7</sup> The aim now is to build upon the work done by Van der Velden to expand the HUB in the future.

The goal of the HUB was to be a focal point for research into labour disputes by providing researchers, the public, and activists with a central and reliable resource. A place where anyone can go to obtain data on labour disputes to answer their (research) questions. Therefore, Van der Velden started by assembling data on collective labour conflicts among both wage workers and the unemployed. At this point in the project, Van der Velden focused on collecting data on strikes and work stoppages, referring to labour conflicts as a form of collective action. Though he did not look at individual action, space was left for expansion

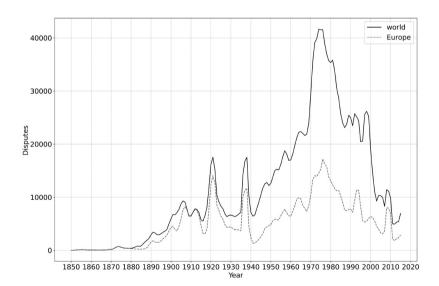


Figure 1 Strikes in the Long Run.

The figure shows the number of annual strikes smoothed to a three-year rolling mean.

(Source: S. van der Velden, 'Global', IISH Data Collection, V4, 2016. Retrieved from https://hdl. handle.net/10622/3ZL50B. Retrieved May 10, 2022.)

7 HUB Global Labour Conflicts', Retrieved from https://iisg.amsterdam/en/blog/hub-global-labourconflicts. Retrieved 13 May 2022. in the future to include an array of different characters, tactics, and strategies in relation to labour conflict.

As it currently stands, 56 different datasets are gathered on the HUB's Dataverse platform. Some of the data they contain is depicted in figure 1. Two of the datasets focus on international aggregated data on strikes and work stoppages, in addition to 51 national and micro datasets and three publications on remarkable strikes. Out of the currently published data, the national level of the HUB is the most developed containing data from over 180 countries. Scandinavian countries provide data on annual strike incidence starting in the late nineteenth century (Denmark and Finland) or the first quarter of the twentieth century (Sweden, Norway). The other datasets focus on specific case studies in greater detail and thus cover fewer countries.

### Data collaboration at different levels

The HUB Global Labour Conflicts collects data on a spectrum of labour conflicts through collaboration with scholars from various disciplines around the world. The HUB has grown into a large network of over 120 scholars working on the history of global labour disputes in Africa, Asia, Europe, and North and South America.

The HUB Global Labour Conflicts collects data from central sources, such as the International Labour Organization (ILO), and various national bureaus of statistics, in addition to research by independent researchers working with archival sources. It aims to provide users with the full scope of data on the global history of labour conflicts. The HUB's structure reflects these different types of data at four levels: global, national, micro, and remarkable.

At the global level of the HUB, there is an aggregated dataset on labour conflicts for more than 250 countries. Largely based on data from the ILO, each country has its own country profile and categories, such as the total number of strikes and work stoppages per year. It also includes disaggregated data by economic activity, days not worked due to work stoppages, workers involved in strikes and lockouts by economic activity and, finally, days not worked due to work stoppages per 1,000 workers. The breakdown for economic activity is based on the International Standard Industrial Classification of All Economic Activities (ISIC).

Following on from these data, the national level of the HUB Global Labour Conflicts provides further context for the strikes and work stoppages which can be useful in understanding who was involved and why. The type of data collected at the national level can vary significantly and relies on independent sources. For example, the national dataset on Ireland from 1985 to 2017 details how many firms were involved in industrial disputes per year, the number of industrial disputes that began within a given year, and the number of industrial disputes in progress within a given year. This data were published by the Irish Central Statistics Office.<sup>8</sup> It provides further details on the makeup of national labour disputes that are not included on the global level of the HUB. Alternatively, the national dataset on Russia 1895-1904 presents data on the regional geography of the labour dispute as well as the nationality or ethnicity of the participants.<sup>9</sup> The data on the national level of the HUB is still aggregated by country but is not congruent with the data published by the ILO.

The micro level of the HUB provides more detailed accounts of specific (periods of) labour disputes. These can consist of compilations of data collected from existing literature or based on primary sources. For instance, there are several micro datasets of strikes in eighteenthand nineteenth-century Britain, data collected by the China Labour Bulletin for 2004 to 2015, and data on strikes by sugar workers in Pernambuco (1917-1919).

At the remarkable level, finally, there are qualitative accounts of a few selected, exceptional historical strikes. These datasets provide examples of labour conflicts that deserve special mention because of their character, duration, or impact. They can include both qualitative descriptions of events and quantitative details on the nature of the labour dispute. Currently, the HUB has three examples of remarkable strikes or work stoppages published. For example, it has a detailed account of a strike in Egypt in 1155 BC by tomb builders who rebelled because their pay was delayed. In this account, it was found that the strike was resolved by a local official who was persuaded to hand over forty-six sacks of corn to restore the peace.<sup>10</sup> The goal of the micro and remarkable levels is to include details and context on specific events which cannot be included on the global or national level.

<sup>8</sup> S. van der Velden, 'Ireland, 1985-2018', IISH Data Collection, V1, 2019. Retrieved from https://hdl. handle.net/10622/WQA23A. Retrieved 20 April 2022.

<sup>9</sup> S. van der Velden, 'Russia, 1895-1904', IISH Data Collection, V1, 2020. Retrieved from https://hdl. handle.net/10622/LSCGBO. Retrieved 20 April 2022.

<sup>10</sup> S. van der Velden, 'Examples of remarkable strikes', IISH Data Collection, V3, 2017. Retrieved from https://hdl.handle.net/10622/SILLE2. Retrieved 20 April 2022.

All the different levels of the HUB Global Labour Conflicts are accessible online via the IISH-Dataverse, an open-source web application that allows scholars to share, preserve, cite, and analyze research. On this Dataverse one can access the published data of the HUB Global Labour Conflicts for free under the title 'Labour Conflicts'. It can be retrieved from: https://datasets.iisg.amsterdam/dataverse/labourconflicts.

The datasets at the different levels can be downloaded in the form of spreadsheets together with an accompanying document that specifies the source of the data and information on the methodology used. In the following sections, a justification will be given as to why we believe the HUB Global Labour Conflicts can contribute to the field by creating a centralized flexible structure.

#### Contribute to the HUB Global Labour Conflicts

As we continue to strive to develop data collaboration on labour conflicts, the HUB is always open to new contributions. By publishing their work via the HUB, scholars reach a wider audience and become part of the global network. At the same time, contributors get to decide their level of participation, from sharing a completely new dataset to filling gaps in the current data available. Contributions can be made by sending an email. Of course, we prefer data that follow the standard format, so that they are directly comparable to other datasets. However, do not hesitate to contact us with other ideas or questions. After the data have been published on the IISH-Dataverse in consultation with the author, the network always receives a news update about your publication. Contact email: LabourConflicts@iisg.nl

#### Studying labour conflicts: toward a central resource

As the nature of labour has changed over time, so have the types of labour actions. Class struggle and labour relations under modern capitalism are quite different from those of the early modern period. There have been changes in the types of approaches used, the frequency with which they occurred, as well as the very makeup of each act of resistance throughout time. Studying how workers reacted to changing labour market conditions, the reorganization of production, or the introduction of modern technologies and automation in the past enables us to put current struggles into their historical context.

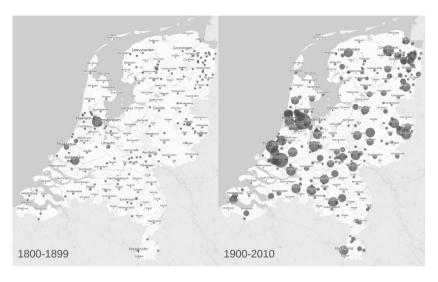
The unique potential of the HUB to provide an overview of strikes across time is demonstrated in figure 1 (above). It shows the number



Illustration 1 Turkish migrant workers in the Netherlands on strike for a pay rise dance to guitar music, 1965-01-12 (source: Nationaal Archief http://hdl.handle.net/10648/adf88cc4-d0b4-102d-bcf8-003048976d84).

of global and European labour disputes from 1850 to 2015 and was created using data available within the macro series of the HUB. It depicts a long wave of strike activity, which originated in the last quarter of the nineteenth century, reached its apex in the 1970s, and has been declining since, except for some localized peaks. It provides the empirical backdrop of the debate about the existence, causes, and effects of the demise of the organized labour movement over the last decades. While this evolution has prompted some scholars to diagnose a secular decline in workers' resistance, others consider this conclusion to be premature. The latter emphasize that capitalism is a dynamic system evolving cyclically, with labour disputes likely to follow a similar pattern.<sup>11</sup> This macro view indisputably comes with a number of important caveats, the most pressing being the lack of data for non-European countries prior to the 1950s.

<sup>11</sup> B.J. Silver, *Forces of labour. Workers' movements and globalization since 1870* (Cambridge 2003); S. van der Velden, H. Dribbusch, D. Lyddon and K. Vandaele, *Strikes around the world. Case-studies of 15 countries* (Amsterdam 2008).



#### Figure 2 The Geography of Dutch Strikes.

The maps show the number of strikes at a given location, with a bubble size ranging from 10 (smallest) to 3000+ strikes (largest). Locations with less than 10 strikes over the entire period 1800-2010 were dropped.

(Source: S. van der Velden and R. Kösters, 'Labour conflicts in the Netherlands, 1372-2019', IISH Data Collection, V10, 2016. Retrieved from https://hdl.handle.net/10622/APNT4U. Retrieved May 10, 2022.)

Mapping the geography of strikes provides another suggestive angle on the data. Unfortunately, the collected datasets contain only limited information about the locations at which actions have taken place. Currently, our best example of relevant data on geographical distribution of strikes is the Netherlands. The two maps shown in figure 2 were created using the Dutch strike database available on the HUB. They reveal many strikes in the 1830s in the north and east of the country. However, with the disappearance of textiles, peat mills, and the shrinking of agriculture-dependent industries, the strike movement in these areas declined. In contrast, the southern provinces grew with post-World War II industrialization as centers of strike activity. Meanwhile, the provinces of Holland, which include the major cities of Amsterdam and Rotterdam, caught up with the rest of the Netherlands until after 1970, when the national strikes emerged. These took place in all regions, with Amsterdam and Rotterdam ranking far higher than the other areas for most of the twentieth century.12

<sup>12</sup> S. van der Velden, Stakingen in Nederland. Arbeidersstrijd, 1830-1995 (Amsterdam 2000).

In general, one of the most significant motivations behind the HUB Global Labour Conflicts is to amend the lack of a central resource for historical data on labour disputes beyond the twentieth century. Currently, the most comprehensive existing time-series data on work stoppages and strikes is provided by the ILO and goes back to 1927. However, only a part is easily accessible through the online ILOSTAT database. Records on labour disputes before 1927 rely on unsystematized evidence from national statistical bureaus, trade union statistics, or qualitative case studies produced by governmental reports, trade unions, researchers, or contemporary observers. While the data for the nineteenth century and earlier are still sparse on the HUB, it is to date the only resource seeking to facilitate comparative research on the history of collective labour action by providing a central resource for this multitude of data.

At the same time, the HUB itself does not fix the methodological challenges that come with comparative studies of collective labour actions, such as diverging conceptual definitions of what constitutes an event of collective labour action, alternative methodologies to capture these events, and varying research interests resulting in the recording of different variables. In the existing literature on comparative studies of strike incidence, these issues feature prominently in critical discussions of the comparability of national strike statistics.<sup>13</sup> They are exacerbated by the problem of underreporting in official national strike statistics, which is made evident when compared to alternative nongovernmental data sources. For instance, the union-related Institute of Economic and Social Research estimates the average number of lost working days per 1,000 employees in Germany from 2011-2020 to be more than double the official figure reported by the government.<sup>14</sup> Consequently, when using the global or national data of the HUB, critical reflection on the methodologies used by national statistics and the ILO is crucial.

Beyond this highly aggregated level of national strike statistics, the HUB functions as a repository of data on collective labour actions collected mostly by research projects that focus on a particular time

<sup>13</sup> See for example: Van der Velden, Dribbusch, Lyddon and Vandaele, *Strikes around the world.;* H. Dribbusch, 'Das Einfache, das so Schwer zu Zählen ist. Probleme der Streikstatistik in der Bundesrepublik Deutschland', *The German Journal of Industrial Relations* 25:3 (2018) 301-319; H. Dribbusch and K. Vandaele, 'Comparing official strike data in Europe – Dealing with varieties of strike recording', *Transfer: European Review of Labour and Research* 22:3 (2016) 413-418.

<sup>14</sup> J. Frindert, H. Dribbusch and T. Schulten, WSI Report (Düsseldorf 2021).

and place to offer a qualifying angle on the aggregate statistics. For these microdata sets, the conceptual and methodological challenges for comparative research interests are inevitably compounded. The HUB addresses this challenge by encouraging contributors to specify their methodology, to indicate the sources of their data and data processing, and to reflect on potential biases, thus including this information as accompanying documentation per dataset. To address the general disparity of historical data on collective labour actions, the HUB has suggested a taxonomy of wage labour conflicts and proposed a shared catalogue of relevant variables for micro data collection projects. The taxonomy helps to distinguish between different forms of action such as strikes, occupations, sabotage, riots, or boycotts, and the catalogue specifies variables such as the duration, demands, outcome, location, or economic sector.<sup>15</sup> The HUB also participates in a global network of strike researchers with the goal of working toward a shared framework of identifying, measuring, and understanding collective labour actions. Moving toward a comprehensive typology of the various historical and contemporary forms of collective labour actions constitutes one of the future ambitions of the HUB which are further discussed in the next section.

With these limitations in mind, the HUB makes the study of global labour dispute history more accessible to a wide array of people. The data published on the IISH Dataverse is open-source and does not sit behind a paywall. Therefore, anyone can contribute to it, and anyone can use it. This accessibility is important to future research because it removes another barrier to knowledge and encourages collaboration on all levels. It includes allowing independent researchers to be part of a wider data project, as well as maintaining and expanding a network of people working on global labour relations and conflicts.

Finally, the HUB not only allows data from all over the world to be published and accessed, but it also acts as a network for those researching workers' collective actions. Since its launch, the project has been shared and discussed among scholars at several conferences and workshops. Already in 2015, at the First Conference of the European Labour History Network in Torino, the project was presented by Van der Velden. In 2018, two additional presentations to connect more

<sup>15</sup> S. van der Velden, 'Building a repository for strike data. The search for micro data', in: S. van der Velden (ed.), *Striking numbers – New approaches to quantitative strike research*, IISH-Research Paper 50 (2012); S. van der Velden, 'Strikes, lockouts, and informal resistance', in: K. Hofmeester and M. van der Linden (eds), *Handbook the global history of work* (Berlin/Boston 2018).

scholars followed at the ESSHC in Belfast and the Fourth International Conference Strikes and Social Conflicts in São Paulo. In the process, insights gained from this data collaboration are shared among participants of the network, by discussing problems of comparability, for example, during the GLHN Workshop Methods for Global Labour Histories in Stockholm. The HUB Meetup during the Fifth International Conference Strikes and Social Conflicts in Rotterdam in 2022 provided scholars in the network the opportunity to also share ideas about the opportunities provided by automated data collection from newspapers on collective actions. Again, old and new members of the network had the opportunity to connect. The HUB's news updates via email make sure that all 120 scholars who are now part of the network stay up-to-date outside of the in-person meetings.

## Going global: future perspectives

A core question debated in this exchange network relates to the future priorities and challenges of the HUB. It must reflect the research agenda formulated by global labour historians.<sup>16</sup> This approach requires historicizing strikes by (mostly) male European unionized industrial wage labourers as merely one type of collective labour action within a specific regional and temporal context. Rather than tracing one type of collective labour action through time, we build on the idea that heteronomous labour relations are always accompanied by resistance on behalf of workers in the past, present, and future alike.<sup>17</sup> Furthermore, global labour history research focuses on the interconnectedness of the working class and their actions across regions and continents, rather than perceiving them through the lens of nation-states. This scope poses serious challenges for the HUB, which comprises disparate national datasets on strikes and lockouts. Practically, they translate into two immediate priorities.

Firstly, there is a need to expand the HUB's scope throughout time and space. Figure 3 outlines currently available data on the HUB by

<sup>16</sup> M. van der Linden, 'The promise and challenges of global labour history', *International Labour and Working-Class History* 82 (2012) 57-76.

<sup>17</sup> M. van der Linden, *Workers of the world. Essays toward a global labour history* (Leiden 2008); K. Hofmeester and M. van der Linden, *Handbook the global history of work* (Berlin 2017); A. Eckert and M. van der Linden. 'New perspectives on workers and the history of work. Global labour history', in: S. Beckert and D. Sachsenmaier (eds), *Global history, globally research and practice around the world* (London/New York 2018) 145-161.

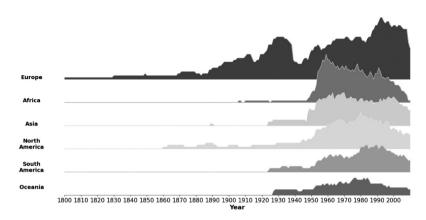


Figure 3 Available Data on the HUB by Continent and Year.

Plots the number of countries with data in the global dataset of the Hub by year and continent.

(Source: S. van der Velden, 'Global', IISH Data Collection, V4, 2016. Retrieved from https://hdl. handle.net/10622/3ZL50B. Retrieved April 20, 2022.)

continent. It reveals the glaring omission of data from non-European countries before the 1950s. Up to that point, the trajectory of strikes in the long run, as shown earlier in figure 1, is almost entirely determined by European countries up to 1950 and thus hardly global. Similarly, figure 3 also shows the overall lack of data before 1870. Filling in these notorious blind spots is a core priority for the future development of the HUB. We hope to collaborate with researchers working on the history of collective actions in other regions in the future, and we plan to initiate research on forms of collective action within the colonies in the early modern period. As a pilot program, the HUB recently launched a project on collective labour action in the early modern period using Dutch digitized colonial periodicals.

However, the idea of widening the scope throughout time and space is crucial beyond the desire for 'complete' data. For example, the history of collective desertions in European colonies prompts us to rethink the role of workers' mobility as a form of organized resistance in other temporal and spatial contexts.<sup>18</sup> Global histories widen our conceptual understanding of workers' resistance and lead to greater openness towards the historical variety and coexistence of a plethora of different actors and types of collective labour action.

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<sup>18</sup> M. Rediker, T. Chakraborty and M. van Rossum (eds), *A global history of runaways. Workers, mobility, and capitalism* 1600-1850 (Oakland 2019).

This augmentation relates to the second immediate challenge and the need to incorporate walkouts, riots, sabotages, boycotts, and more subtle forms of resistance, such as the creation of mutual funds, into the scope of the database.<sup>19</sup> Similarly, we need to consider a broader range of actors. Among them are the self-employed and unemployed, who emerge as the main actors in disputes around labour and the distribution of resources following the great crash in 2008 and the ensuing unemployment and economic stagnation.<sup>20</sup> This expanded methodology is particularly salient considering increasingly widespread action by self-employed platform workers which tends to evade the conventional way of accounting for strikes.<sup>21</sup> It addresses another caveat of the macro view of strikes shown earlier which only includes labour disputes in the form of work stoppages by employed wage labourers. In light of these limitations, what appeared as a testimony of a secular demise of workers' resistance might instead prompt us to reassess how well our conventional views capture collective labour action both in the past and present.

Naturally, the shortcomings of the historiography of labour unrest and, in particular, its empirical foundation and conceptual biases are shaped by the main sources and their peculiar perspectives. Quantitative studies of labour unrest and strikes tend to rely significantly on official union or state statistics, while case studies often use a variety of archival materials such as newspapers or periodical articles, police reports, or very disaggregated union sources. As opposed to already aggregated (national) statistics, the latter contain a richness of information on the agents, form, geography, and outcome of labour unrest events. Given the relevance of this fine-grained information, it is paramount that we develop new methodologies and workflows to systematically collect data from these sources. For historical data, particularly the progress made in the digitization of historical newspapers as well as the methodological reflections and tools developed by scholars of Digital History increasingly enable the (semi-)automatic retrieval of information from vast digital collections, thereby allowing us to go both deep and wide in our data collection process. Newspaper articles are especially promising from a global history standpoint because their

<sup>19</sup> Hofmeester and Van der Linden, Handbook the global history of work, 491.

<sup>20</sup> B.J. Silver, S.S. Karatasli and S. Kumral. *A new global tide of rising social protest? The early twenty-first century in world historical perspective* (Baltimore 2018).

<sup>21</sup> V. Trappmann, I. Bessa, S. Joyce, D. Neumann, M. Stuart and C. Umney. *Global labour unrest on platforms – The case of food delivery workers* (Bonn 2020) 17.

reporting tends to go beyond national boundaries, making them an apt source for the study of entangled histories.

In conclusion, we hope to meet these challenges as part of a growing network of users and researchers that is the HUB of Global Labour Conflicts. Through collaboration and the incorporation of existing work into a more cohesive resource we are looking to increase the number of different resources available to the public and to provide a more nuanced, critical perception of global labour history. We encourage further reader contributions, whether to the database or to the ongoing discussion about its future development.

#### Automated Data Extraction

The usage of machine learning in text and layout recognition tools has led to a breakthrough in the quality of digitized historical newspaper collections, which historians are only now starting to tap into. Using a conventional keyword-based Boolean query in combination with word embeddings to identify false positives allows the retrieval of newspaper sections and their classification as (ir)relevant to the topic of collective action. Models trained to detect named entities or locations can then be used in a distant-reading approach for understanding patterns in the frequency, geography, or participants of such events or for use as recommender systems for the semiautomatic annotation of relevant information in newspaper articles. The HUB not only creates such workflows for adoption and implementation by researchers but also strives to create common frameworks and data models, so as to allow for the creation of linked data on collective labour action events.

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