



Socio-technical transition and justice:
A study on containerization and justice in the
Port of Rotterdam (1960-2010)

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Master's thesis – Innovation Sciences

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Abstract

Introduction

This research describes how justice and injustice for dockworkers developed during the social-technical regime transition from the breakbulk regime to the container regime in the Port of Rotterdam. Hereby contributing to our understanding of the relationship between justice and socio-technical transitions.

Theory

The study joins theories from transition and justice literature, using the Multi-Level Perspective and three-justice tenets, distributional, procedural and recognition justice, to create a preliminary conceptual framework. This framework allows the researcher to describe the development of justice and injustice during a regime transition.

Methods

Using this framework, a literature analysis of secondary data and semi-structured expert interviews were conducted. This data was coded to generate a database that allowed for a process-tracing approach which was used to construct a historical case study.

Results

The traditional breakbulk regime was characterized by a unique set of justice and injustice, primarily tied to the work environment. These unique dynamics in the workspace and breakbulk companies created a unique dockworkers' culture, which resulted in high unionization rates. When the container entered the port, the distribution of jobs shifted due to job decreases in the breakbulk. In addition, container companies hiring procedures didn't give traditional dockworkers equal chances due to their cultural alignment. However, because unionization rates were high, dockworkers could organize sizeable collective actions to influence procedures in the port. These actions prevented most forced lay-offs and successfully pressured actors to agree to sectorial solutions for the growing labour abundance. By the end of the transition, work in the general cargo had changed dramatically. Due to standardization opportunities, work at the container terminals was more monotonous but came with higher pay and strong secondary labour conditions. This is partially the result of continuous collective actions by dockworkers, who still pertain considerable similarities to the 1960s culture.

Reflections and conclusions

The case study shows the use of the conceptual framework to assess the development of justice and injustice during a transition. Three theoretical processes were deducted: the process of cultural exclusion, of justice-induced strategy change and of virtuous justice cycles, thereby refining the conceptual framework. Avenues for further research are the phase-out of the coal regime, especially the more finalized transition in Germany and ongoing in Australia. Additionally, this research shows the benefits of a collective sectorial labour pool to deal with sudden shocks in labour demand and the role of organized labour in limiting and tackling injustices.

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1. Introduction

In the last 70 years, the Port of Rotterdam has transformed into one of the biggest main ports in Europe (Berkhout et al., 2018). An important reason for this growth is the introduction of standardized shipping containers. This changed the way how a large share of general cargo, all cargo that is shipped per unit, is handled (Paardenkooper-Suli, 2014; Turnbull & Sapsford, 2001). The container provided opportunities to standardize processes, shaking up the existing market structure responsible for handling general cargo. In the port, this market constituted of breakbulk companies that handled goods such as crates, bicycles or sacks of coffee (Busch, 2013; Levinson, 2016). Growth in container companies came at the expense of the traditional breakbulk companies (Driel, 1990; Velden, 1982). The resulting layoffs, reorganization and decreases in wages, among other social issues, created tensions among dockworkers in the port. Calls for justice by dockworkers led to severe strikes, which steered the developments in the general cargo sector (Marges, 2021b; Smit, 2013). Above all, work in the general cargo sector would change severely. Work in the traditional breakbulk was characterized as tough, dirty, and with a high risk of injury, but also with high autonomy (Dicke et al., 2007; Nortier, 1985). Work at the container terminals was safer, less physical straining and better paid. However, it also was more monotonous and with fewer social contacts (Kruif & Velden, 2015; Smit, 2013). The modern shipping container not only changed the economics of shipping goods, but it also drastically changed social arrangements at the docks of the general cargo sector (Nijhof, 1988; Paardenkooper-Suli, 2014; Smit, 1994).

Authors in the field of transition research have gradually taken more interest in the social consequences of socio-technical transition, akin to the transition to the container, over the past decades (Köhler et al., 2019; Martin, 2016). In areas such as energy mobility and transport, socio-technical transitions refer to a large systemic and social change, for instance, the transition from horse carriages to automobiles (Geels, 2005b). To understand the social impacts of transition the concept of justice, which can be broadly defined as “*giving to each his or her due*” (Campbell, 1988, p. 4), has been used to describe the outcomes on justice and injustice (Finley-Brook & Holloman, 2016; Healy & Barry, 2017; Jenkins et al., 2018; Kalt, 2021). It is generally accepted that transitions have the potential to impact justice and injustice (IPCC, 2022, Chapter 17; Köhler et al., 2019; Marin et al., 2021), such as the impact of phasing out coal on the livelihood of traditional coal mining communities in the UK (Johnstone & Hielscher, 2017). This is especially relevant now as we are amidst a grand sustainability challenge which demands large social-technical transitions in existing sectors. To do so, various international and national agencies have drawn up strategies to transition toward a more sustainable, but also a more just society (IPCC, 2022, Chapter 17; Marin et al., 2021; U.N., 2021). To ensure that policies, such as the one trillion Eu green deal (Marin et al., 2021), are spent in a just manner, we need to understand the relationship between justice and transition. However, while researchers have developed well-refined justice and transition lenses to analyse cases, there is yet no uniform accepted framework that combines justice and transitions together to describe the processes governing this relationship (Jenkins et al., 2018; Köhler et al., 2019; Wang & Lo, 2021)

A prominent framework used in Innovation Studies to understand how systemic transitions occur and develop in a socio-technical context is the *Multi-Level Perspective (MLP)* (Jenkins et al., 2018; Köhler et al., 2019; Wang & Lo, 2021). It consists of three analytical levels which interact with each other, namely the landscape (macro-level), regime (meso-level) and niche (micro-level) level. The regime is a collection of physical structures, technologies and rules, which is usually stable. However, via internal and external pressures, regimes may lose stability and provide windows of opportunity for niche innovations to develop further into the regime. The regime then takes time to adapt to the changes

and slowly regains a new stable configuration as regime actors, such as dockworkers or companies, interact and align their activities once again (Geels, 2018). While the MLP describes social aspects of the transition, it does not yet do so in an explicit manner (Geels, 2019; Wang & Lo, 2021)

To advance the MLP framework on these issues, one can draw on research on justice and injustice from various scientific fields ranging from law to environmental studies (Chapman et al., 2018; Schwanen, 2020; Sovacool et al., 2017). Three tenets often used in transition studies are *distributional*, *procedural* and *recognition* justice. *Distributional* justice refers to the division of devisable benefits, ills and responsibilities, such as wages and unfair working conditions. *Procedural* justice refers to the decision-making processes and to what extent actors have the power to direct processes. Lastly, *recognition* justice refers to all stakeholders being involved in non-discriminatory or directly harmful ways (Jenkins et al., 2016). These three tents provide researchers with an approach to describing justice and injustice throughout a systemic change (Bodwitch et al., 2022; Chapman et al., 2018; Healy & Barry, 2017; Köhler et al., 2019)

In this research, a preliminary conceptual framework is constructed based on the MLP framework and the three-justice tenets to help answer the main research question: *How did justice and injustices for dockworkers develop during the transition from breakbulk to container regime in the Port of Rotterdam?* Additionally, in this framework, it is expected that actors in the regime, which are in this case study dockworkers, companies, unions and government, take actions to mitigate perceived injustices. The actions may influence the regime, and therefore have an impact on the overall transition. Hence two additional sub-questions are asked: *what actions were taken by actors to influence injustices?* And *what were the effect of these actions on injustice?* A case study is constructed based on secondary literature and expert interviews. Based on the case study, three theoretical processes are suggested, which refine the preliminary conceptual framework. Thereby answering the research question and shedding light on the relationship between transition and justice.

2. Theoretical framework

In the following section, the Multi-level perspective framework is introduced and discussed. The MLP framework lends itself especially to understanding and describing social-technical transitions. It describes three analytical levels which enable the researcher to make sense of the complex social phenomenon that are transitions. In addition, the MLP describes how these levels interact as well as how internal dynamics may play out (Geels, 2019; Konrad et al., 2008). Together this means that it enables the analysis of different structures and dynamics, which make it a framework that appreciates the complexity of transitions which is necessary to understand how injustices developed during the containerization in the Port of Rotterdam.

Next is the introduction of the three-justice tenets which will be used to map the different injustices before and during the transition. These three tenets have already been shown to be useful for researching justice in relation to innovations and transitions in different scientific fields (Chapman et al., 2018; Rasch & Köhne, 2017; Schwanen, 2020; Sovacool et al., 2019). The three-justice tenets, namely, capture a great portion of possible injustice as most societal dimensions, such as individual characteristics and history can be involved in at least one justice tenet. This allows for determining and explaining different injustices (Jenkins et al., 2016). Hence providing a well-rounded approach to understand which and how injustices occurred during containerization.

Last is a preliminary conceptual framework where the justice tenets are joined with the regime of the MLP. This resulted in a framework that can describe how the regime and injustice are related to each other, and hence how injustice occurs when a regime transitions. This helped make sense of the data and construct the case study, which in turn will help answer the research questions.

2.1. MLP

The Multi-level perspective is an analytical framework that conceptualizes the complex dynamics of socio-technical transitions. The theory utilizes concepts from various academic fields, especially evolutionary economics, science and technology studies, and neo-institutional theory (Geels, 2011). To do so the model describes three different analytical levels. At the micro-level there are the *niches* (radical innovations), the *socio-technical regime* at the meso-level (a stabilized socio-technical regime) and the *landscape* to describe the external macro level (the exogenous landscape), see figure 1 (Geels, 2002). The levels are characterized by their various stability, the number of actors and the alignment of elements (Geels, 2011).

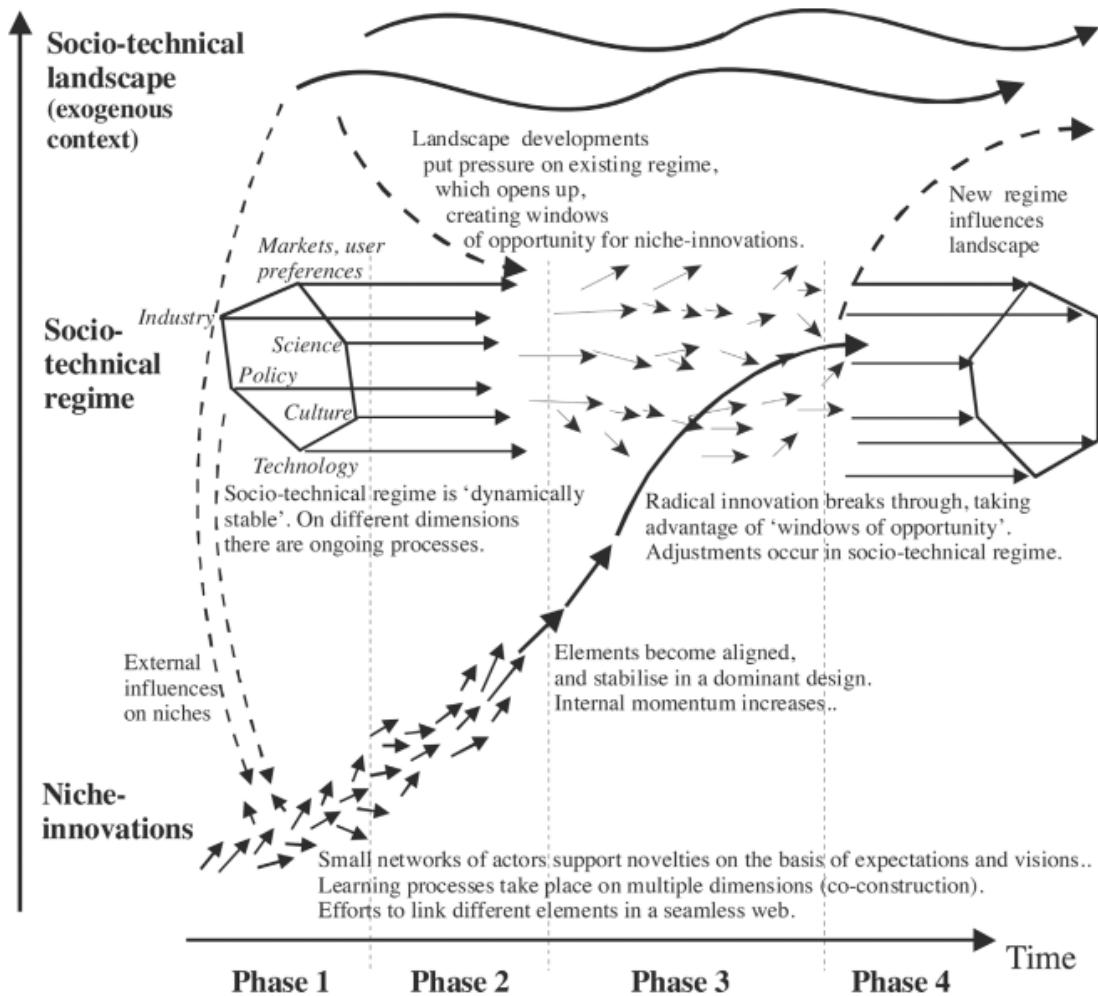


Figure 1: Conceptualization of the Multi-level perspective on socio-technical transitions. Note: from Geels (2018) on page 226

Socio-technical regimes form the meso-level of the frameworks and consist of a collection of informal and formal rules that structure socio-technical systems. This socio-technical system consists of technologies, supply chains, infrastructures, markets, regulations, user practices and cultural meanings (Geels, 2018). In the MLP, six analytical dimension are created to classify these components of the socio-technical system, namely Markets, Science, Culture, Policy, Technology and Industry (see figure 1). These dimensions are linked to each other and co-evolve based on the interactions within and between actors. These actors include, but are not limited to, engineers, firms, scientists, policymakers, users and other special-interest groups (Geels, 2002). Their interactions are guided by the informal and formal rules of the socio-technical regime. The result of these interactions is an increasingly stable regime as the number of (mutual) interdependencies increases, leading to path dependency (Geels, 2007). A regime can be part of an economic sector, domains of the economy such as the energy sector or transport sector. A Sector can be characterized by competing regimes as well as one dominant regime (Konrad et al., 2008)

In this study, the breakbulk and container regime, which are located in the general cargo sector in the Port of Rotterdam, are studied. The general cargo sector refers to a collection of regimes responsible for the movement of general cargo, which is unitized cargo and are often shipped together in, for example, crates, bundles or containers. Before containerization, the breakbulk regime dominated the

general cargo sector of the Port of Rotterdam. The regime owns its name to the main technology of shipping general cargo, namely via breaking bulk. (Smit, 2013). The regimes industry was, by 1960 characterized by a large number of smaller, up to 40, different stevedores who largely used manual labour due to the heterogenous nature of breakbulk (Velden, 1982). This process often took a day at the port, making labour costs the biggest expense when shipping breakbulk. As a result, the market of shipping breakbulk was constrained by labour productivity, low productivity meant relative high total costs to ship general cargo (Driel, 1990). These constraints have implications on scientific progress in the regime, research projects that do not improve labour productivity are often not economically sensible. Hence, scientific projects that actualize into products often improve productivity at the docks, for example, the pallet and the forklift (levinson, 2016). Furthermore, the nature of work at the docks shaped part of the regimes culture. The labour environment was often dangerous, could be dirty and though to work in due to the coastal climate. Hence dockworkers were not only dependent on their peers for the productivity of the work but also for safety. The regime's resulting dominant culture was characterised by high peer solidarity, being quick to take collective action, aversion to change and suspicion towards employers (Nijhof, 1988; Velden, 1982). Lastly, in terms of policies and institutions of the regime, there is the Gemeentelijk Havenbedrijf which manages and rents port infrastructure on behalf of the municipality. Additionally, the national government is involved largely to ensure the economic processes in the port occur with little disruptions. Lastly, the last important institutions are the labor unions, which on behalf of the dockworkers, negotiated with employers and the government. Their strong position can be largely attributed to characteristics of the dominant culture in the regime, that being high solidarity and quick to act against injustice (Smit, 2013).

Niche-innovations is the micro-level of the framework. Niches are protected markets where radical instead of incremental innovations often occur and develop. They are hampered by path dependency and lock-in mechanisms, occurring on both the user and producers' sides (such as regulations and lack of specific infrastructure) to develop beyond their niche (Geels, 2011).

Socio-technical landscape contains the macro-level, which is seen as an exogenous environment that influences both the regime and the niche dynamics. It can be seen as the technical and material backdrop which sustains society but also include social and economic dynamics (such as politics and macro-economic trends) (Geels, 2011). Landscape developments can compromise as slow-changing trends but also shocks such as war, economic crises or political upheavals (Geels, 2018). A concrete example relevant in the case of containerization is the Vietnam war. This war fuelled the demand for containers as traditional processes of shipping general cargo was expensive and time-consuming (Busch, 2013).

Transitions are determined by the interactions and alignments between these three levels. Initially, a niche innovation develops at the fringes of a regime and stays there for an undetermined time. A breakthrough may occur on the micro-level as the niche innovation becomes more competitive and gets support from powerful actors from the socio-technical landscape and regime (Geels, 2007). However, it may also be the case that external landscape developments and internal regime dynamics destabilize the regime structure. This destabilization is an weakening of the regime structure's reproductive process (Turnheim & Geels, 2012), therefore opening up opportunities for niches-innovations (Geels, 2018). For example, landscape pressures in the form of high economic growth and restricting wage policies resulted in labour shortages in the breakbulk regime between 1960 and 1970 (Smit, 2013). As a result, employers had to adopt new strategies to attain enough labour, thereby changing the continuation of existing regime structures such as the permanence of work. Therefore, the total cost of labour rose, which destabilized the regime as it increased the incentive for employer to find substitutes for the increasingly expensive labour (Driel, 1990; Velden, 1982). Hence the

container (the niche-innovation), became more competitive and may explain partially to why stevedores in Rotterdam were relative eager to enter the container market (Smit, 2013; Director Breakbulk). This contributed to the transition from breakbulk regime to the container regime in the general cargo sector.

The transition often results from internal niche development and landscape pressure (Geels & Schot, 2007; Turnheim & Geels, 2012). The introduction of the niche innovation further destabilizes the old regime, which opens up the floor for changes in the regime dimensions (Geels & Schot, 2007). As processes related to the niche align, a new regime starts to form (Kanger & Sovacool, 2022) and starts to replace to previous dominant design, which often is accompanied by broad changes in the regime dimensions. At the final end of the transition a new dominant and dynamically stable regime has developed (Geels & Schot, 2007).

2.2. Justice

Case studies using the MLP framework already occasionally give insight into social justice dynamics, such as the emancipation of black artists during the development of rock 'n' roll (Geels, 2007) or the loss of jobs in mining communities during the phasing out of coal (Turnheim & Geels, 2012). Because of the broad social and cultural aspect of the MLP model, descriptions of the emergence or continuations of justices and injustices often occur when describing transitions (Geels, 2007; Wang & Lo, 2021). These, however, are usually not the focal point of MLP research.

Justice itself is a precarious subject to define as many different things can be said to be unjust. This ranges from laws but also actions, decisions, attitudes and distributions (Kalt, 2021). This results in justice being relevant in many different disciplines and being at the core of disciplines such as environmental justice and energy justice. A traditional definition of justice is "*giving to each his or her due*" (Campbell, 1988, p. 4). This definition provides flexibility on what is meant by "*due*". However, as Campbell (1988) also points out, the lack of distinction can also lead to discrimination. Defining what is meant by "*due*" is constant discussion, resulting in a great variety of schools of thought and perspectives.

The field of energy justice emerged as the result of rising concerns on the implication of energy production on justice (Sovacool et al., 2017). It applies justice principles on energy questions across the energy system, for example, on the current energy transition, the political economy of energy and energy activism. (Jenkins et al., 2016). The energy justice field has adopted and further developed three pillars of justice based on their philosophical groundings, namely *distributional*, *recognition* and *procedural justice*. Not only do these tenets as a whole cover a majority of injustices and provide a strategy to formulate solutions to tackle injustice, but they are also used in other transitions studies beyond the energy science field (Jenkins et al., 2016; Sovacool et al., 2019; Walker, 2009).

2.2.1. Distributional justice

Distributional justice relates to the physical allocation of devisable benefits and ills, in addition to the related responsibilities (Jenkins et al., 2016). Distributional justice, therefore, constitutes a wide arrangement of possible metrics. This includes the distribution of economic benefits such as income and jobs (Healy & Barry, 2017; Kalt, 2021) but also burdens such as a dangerous work environment or pollution (Finley-Brook & Holloman, 2016; Fry & Hilburn, 2020). An example of distributional injustice in the traditional breakbulk regime is the relatively large burden placed on dockworkers in the form of dangerous, dirty and often badly paid work. (Nijhof, 1988). By researching a transition with lenses

provided by the three-justice tenets, we can draw up the distributional effects the transition has on different regime actors, such as dockworkers. (Healy & Barry, 2017; Kalt, 2021). The transition to the container in Rotterdam, for example, unevenly impacted wages. Initially, dockworkers working with containers earned higher wages than their peers in the breakbulk regime (Smit, 2013).

2.2.2. Recognition justice

Recognition justice concerns itself with equal representation in addition to complete and equal political rights. Recognition injustice can be defined as “*the processes of disrespect, insult and degradation that devalue some people and someplace identities in comparison to others*” (Walker, 2009). Lacking recognition can manifest itself in political and cultural dominion, as seen in the case of dockworkers whose strong cultures put their stamp on the dynamics in ports (Levinson, 2016). However, as Rotterdam container handling companies needed labourers at the beginning of the transitions, they were reported to be averse to hiring these dockworkers precisely for their strong (headstrong) cultures (Smit, 1994). In addition, part of *recognition* injustice is also the misrecognition of the needs and values of actors and can lead to, for example, *distribution* injustice. Therefore, it also calls for acknowledging the divergent characteristics of social groups, such as social, cultural or gender differences (Jenkins et al., 2016).

2.2.3. Procedural justice

Lastly, procedural justice concerns itself with ensuring that all stakeholders are engaged in equitable procedures in a non-discriminatory manner (Jenkins et al., 2016). This tenet was popularized by Rawls, he described procedural justice as being concerned with fairness in the processes which govern our lives and allocate resources (Rawls, 1999). Hence it focuses not only on regulatory rules governed by states and companies but also on practices, norms, values and behaviours. For example, because container companies increasingly operate globally, the distance between employee and employer has grown. This in turn, can have created procedural injustices as it became harder for employees to influence decision-making processes on the highest company level (Smit, 2013). Hence procedural justice differs from distributional justice by distinctly looking at the decision-making process, while distributional justice relates to the final distribution of resources (Hall, 2013).

2.3. Conceptual framework

Using the MLP framework and the three-justice tenets together is necessary to understand how injustice occurs during a transition, in this case, containerization. However, to do so, a preliminary framework including both theories is demanded to understand the data and construct a case, via which the research question is answered. The MLP provides analytical tools to study regime transition via internal regime processes, niche developments and landscape pressures. Within these processes, justice and injustice occur but are not specified in the framework. The three-justice tenets provide an analytical framework to map these justices and injustices. By including the three-justice tenets in the regime of the MLP, the justices and injustices present in a regime can be described and specified. The three-justice tenets, just as other measures of inequality or fairness, are connected to the regime structures. Meaning that justice and injustice are maintained by the existing structures. Hence as the regime structure changes, for example, via a transition, justices and injustices change as well due to the connectivity to the regime structure. Lastly, the niche and landscape levels are also

included in the conceptual model as they partially explain how a regime transitions over time. Hence they are necessary to include to fully explain how justice develops during a regime transition.

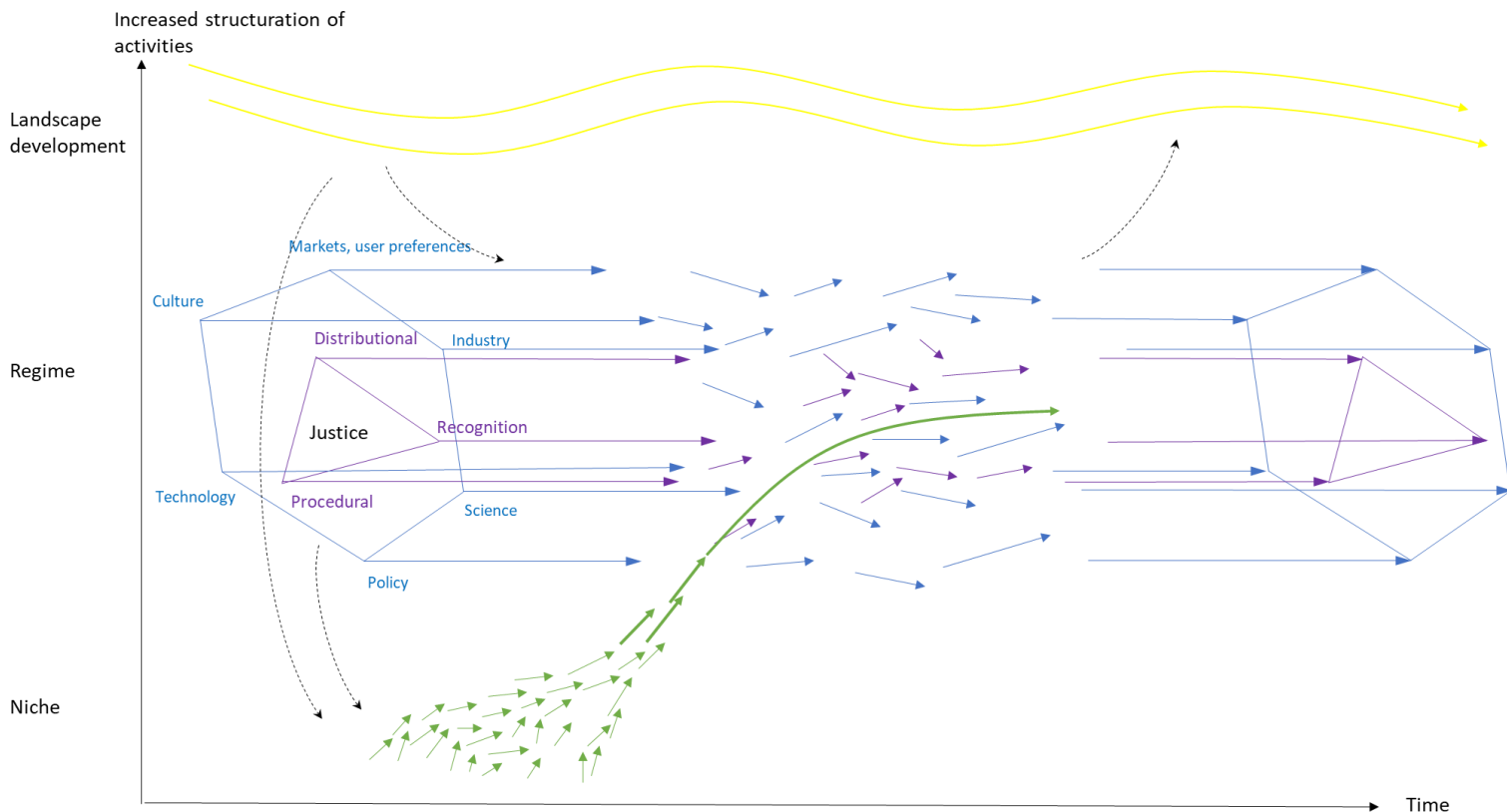


Figure 2. Preliminary conceptual framework of the social-technical regime and justice

In figure 2, the preliminary conceptual framework is presented. It includes all three analytical levels of the MLP and their connections (see figure 1 for more elaboration). During a stable regime, the regime only changes incrementally. As the justice configuration (the collection of justice and injustices) is dependent on the regime's structure, it is expected to then also change incrementally. However, when the regime destabilizes, it is expected that the justice configuration, just as the regime, sees more radical changes. As the transition occurs, some injustice might dissipate while new injustices emerge. For example, containerization might have created safer jobs, but it may have also resulted in more social isolation on the work floor (Velden, 2013; Nortier, 1985)

With the existence and creation of new injustice within the regime, it is expected that actors may take action to mitigate perceived injustice. This, in turn, might influence the regime and decrease the targeted injustice. An example could be the strikes after 1979, which were predominantly about labour security. The result was close to a complete forced lay-off ban till mid-1990, greatly enhancing jobs security during these years (Smit, 2013; Boot, 2011). Hence action by actors might influence the injustice found during the case study. Therefore, an additional two research questions are raised which are: *what actions were taken by actors in the regime to tackle injustice?* And, *what was the effect of these actions on injustice?* The actors, in this case, are all involved in the regime. Four groups are identified, dockworkers, companies, unions and government actors. Relevant actions are those which have to goal to decrease injustice in the regime.

3. Methodology

In the following section, first the research design is discussed, after which the topic and scope of the case study are described. This is followed by an elaboration on the data collection, where a sample of the interview questions is given, and data analysis is described. Lastly, possible ethical questions, validity and reliability of the research and data are discussed.

3.1. *Research design*

A historical case study is a method to examine historical cases intensively. It enables generating a detailed understanding of complex historical case (Bryman, 2012). This approach is suitable to answer the research questions of this study, as it asks for a detailed examination of the processes that generated justices and injustices in the Port of Rotterdam during its of transition towards the container. Theoretical concepts related to the preliminary framework were used to make sense of and organize the data. Subsequent data was then used to construct the case study. The case study describes the processes which changed justices and injustice, and the role of different regime actors in these processes. In the case study, three theoretical processes were identified that help explain changes in justice and injustices. These theoretical processes are additions to the conceptual framework by providing a more specific explanation of what process can be responsible for changes in justice and injustices during and socio-technical regime transition.

The data for the case study was drawn from secondary sources such as books and scientific papers. The transition in the Port of Rotterdam, in general, has been of a topic of interest for numerous scholars and researchers, not only just for its unique economic position (T. E. Notteboom, 2004; Paardenkooper-Suli, 2014) but especially for its unique labour dynamics over its vast existence (Driel, 1988; Hoeven, 1963; Nijhof, 1988; Nortier, 1985; T. E. Notteboom, 2004; Smit, 2013; Velden, 1982; Wierks, 1994). These works use varying methods and sources, providing an extensive and diverse overview of events and processes between 1960 and 2010 in the general cargo sector in Rotterdam. In addition, expert interviews were also taken to supplement the data on more recent events and triangulate claims about, for example, the quality of Collective Labour Agreements (CLA's) and the fairness of wages. Lastly, in addition to mainly qualitative data, some quantitative data is used to supplement the data. Together these different sources enabled the construction of the case study that utilizes the strength of both qualitative and quantitative data and helps answer the research questions.

3.2. *Case selection and delineation*

The transition to the container regime coincided with a considerable change in the role of labour. Before the container, handling general cargo was highly dependent on the use of manual labour. Container companies, on the other hand, are more dependent on capital (Driel, 1988; Velden, 1982). This difference significantly impacts labour demand as handling a container uses far few labour hours for the same unit of cargo. Hence as the container becomes dominant, the total *distribution* of labour spots in the general cargo sector changes (Smit, 2013). Additionally, the work at the container terminals differs from work at the breakbulk terminals. For example, the work at container terminals sees a lower *distribution* of dangerous and dirty work due to increased automation. Furthermore, between the two workplaces, the *distribution* of wages is different. Container operators tend to earn higher wages throughout the transition (Horst et al., 1980; Velden, 2013). The unequal wage *distribution* also has implications on relations, as it was partially responsible for rifts between the

breakbulk and container workers groups (Smit, 2013; Wierks, 1994). Hence the different roles of labour have implications for the development of justice and injustices for dockworkers during the transition.

Because the transition occurred rather rapidly, explicit justice and injustice developments make it easier to study the relationship between justice and the transition. In only 20 years, the container regime in the general cargo sector handled more than half of the total throughput (Smit, 2013). As a result, the regime became increasingly destabilized, as is indicated by the increased number of strikes between 1970 and 1990. Given that the regime is characterized by relatively high union participation rates and a strike-prone dock culture, actions by dockworkers and unions frequently occurred (Boot, 2011; Kruif & Velden, 2015; Smit, 2013). The resulting tumultuous time and coinciding profound actions by actors between 1970 and 1990 make it easier to study the development of justice and injustices during this transition.

The first container ship in the Port of Rotterdam arrived in 1966 (Driel, 1988). Hence by starting the case study in 1960, the dominant regime before the transition can be described and analyzed. This gives context to the transition, actors and processes influencing justice and injustice during the transition. Between 2000 and 2010, container companies handled approximately 80% of the general cargo throughput, pushing breakbulk companies to more niche markets (Smit, 2013). Therefore, the case study ends in 2010, when the container has amassed a stable market share in the sector. In addition, by 2010, changes in the regime had little to do with the transition toward the container. Instead, these changes are related to processes in the container regime, such as further automation and digitalisation of container terminals. In the case study, the breakbulk and container companies operating in the Port of Rotterdam are of main interest. However, the general cargo sector itself also contains various other niches, such as highly specialized terminals and the Roll-on Roll-off (Ro-Ro) terminals. The Roll-on Roll-off are terminals where wheeled cargo is handled. By 1970, it is present in the port and will eventually handle up to 13% of total throughput. However, it does not become a dominant regime in the sector and plays only a small role in the transition (Smit, 2013). Henceforth Ro-Ro, and other subsections of the general cargo sector, are not analysed.

3.3. *Data collection*

For the construction of the historical case study, academic and literary works were studied. A systemic search was conducted to identify relevant sources. Table 1 contains the list of sources which were used for the construction of the case study. The sources were found via traditional methods using keyword searching in academic databases and via the analysis of reference lists of already identified relevant sources. Keywords included *Rotterdam, port, dockworker, container, breakbulk, general cargo, labour relations and containerization*. These search terms were used in conjunction with each other and the Dutch translation to capture written works in Dutch. The first stage was to find literature with the use of online tools. Wordcat and Google Scholar both provide tools to find accessible and relevant literature with the use of the above-mentioned search terms. In addition, the physical libraries of the University of Utrecht and Erasmus University were used, again using the above-mentioned keywords. The second stage entailed going through the reference lists of the literature identified in step one. Literature was identified on the contents and whether it was scientific literature or literary work. Thirdly, the library of the Maritime Museum in Rotterdam was consulted. Their library contained some unique works not accessible via previously mentioned libraries. Lastly, interviewees were also asked for relevant and essential literature. This ensured a more complete list of sources used in the case study.

Table 1: literature source case study

Sources			
Titel	Author	Year	Document
Arbeidsverhoudingen in de Haven van Rotterdam: een structureel probleem?	Wierks	1994	PhD dissertation
De herstructurering van de Rotterdamse stukgoedsector	Driel	1988	Paper
Samenwerking in haven en vervoer in het containertijdperk	Driel	1990	PhD dissertation
De Rotterdamse havenarbeiders: verburgerlijkt of strijdbaar?	Nijhof	1988	Paper
De syndicale onderstroom: Stakingen in de Rotterdamse haven, 1889-2010	Smit	2013	PhD dissertation
Dock labour and port-related employment in the European seaport system	Notteboom	2010	Research report
'Havenartiesten' in actie	Smit	1994	Paper
Hitting the bricks: An international comparative study of conflict on the waterfront	Turnbull & Sapsford	2001	Paper
Op verkenningstocht bij ECT	Adema et al.	2008	Master dissertation
Opstandig volk: neergang en terugkeer van losse havenarbeid	Boot	2011	PhD dissertation
Technologie en Arbeid in de Rotterdamse Haven tussen 1880 en 1980	Nortier	1985	PhD dissertation
The Port of Rotterdam and the maritime container	Paardenkooper-Suli	2014	PhD dissertation
Herinneringen van Kees Marges	Marges	2021-2022	Memoires (collection)
In het belang van de Haven	Dicke	2007	Book
Interview Havenarbeiders	Turenhout	1996	Research report
Kapitaal en Arbeid in de Rotterdamse Haven	Velden	1982	PhD dissertation
Werken in de Rotterdamse Haven	Horst	1980	Book
Werk en omstandigheden in de stukgoedsector	Velden	2013	Book
The Box	Levinson	2016	Book
Containerization and the Load Center Concept	Hayut	1981	Paper
Infrastructure flexibility created by standardized gateways	Egyedi	2001	Paper
Standards: recipes for reality	Busch	2013	Book
The Local Impact of Containerization	Brooks	2018	Paper
Havenarbeiders van Amsterdam en Rotterdam	Ter Hoeven	1963	Paper
Pensionmiljoenen: De Strijd om het Pensioengeld van de Havens	Kruif & Velden	2015	Book

Expert interviews were conducted for data triangulation and to generate new insights. For example, there is less literature on modern breakbulk companies. Therefore, experts were important to give insight into how these companies operated. The data was triangulated with data generated from the literature study. This provided additional gravity to certain phenomena or events. For example, the large strike in 1979 is described both in literature and by interviewees as an important turning stone in the transition. Expert interviews were selected by first determining the relevant actors in the regime, that being unions, dockworkers, companies and government, after which individuals of interest were identified. It was aimed to include at least one interviewee per group. In total, five expert interviews in-person were held for one to two hours, plus one via e-mail (see Table 2). Data generated from these interviews confirmed data from the literature study. During the interviews, saturation was reached due to no more new insights being discovered. This led to the decision not to conduct any further interviews.

Table 2: List of interviewees

Interviewees	Occupation	Reference in text
External advisor ECT	Advisor ECT / Retired (ECT)	Advisor ECT
Niek Stam	Union leader (FNV)	Union leader 1
Evert Smit	Researcher / business sociologist	Researchers 1
Sjaak van der Velden	Researcher / historian	Researcher 2
Danny Leverwaarde	Director Breakbulk at Port of Rotterdam	Director Breakbulk

Kees Marges (via e-mail)	Union leader (FNV) /Retired	Union leader 2
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The interviews were semi-structured to create a dynamic interview. This allowed for raising additional questions when applicable and interesting for the case study (Adams, 2015). The questions were based upon the three-justice dimensions and the MLP framework. In addition, questions raised during the case study analysis were also incorporated into the questionnaires. In table 3, some example questions asked are shown, a full list of questions can be found in Appendix 8.3

Table 3: examples of interview questions

Focus	Sample questions
Distributional justice	Who benefited most of the fractioned CLA's in the port? What benefits do you identify for workers because of containerization?
Procedural justice	How successful was the phenomenon of "pattern bargaining"? To what extent has the power of the union changed in the last decades?
Recognition justice	How has the position of the sjorder changed during the transition? Would you describe the current labour culture as homogenous?
Action and dynamics	How is the relationships between employers and employees changed in the container sector?

	Why do we see increasingly defensive action in the Port in the last decades?
Regime	<p>To what extent are companies in the current breakbulk specialized in their own niches?</p> <p>How did the SHB change as of 1979?</p> <p>How would you described the culture in container sector?</p>

3.4. Data analysis

Literature and interviews were coded via a combination of inductive and deductive methods based on Bryman (2012; Part 3). This enabled a process-tracing approach, useful for investigating complex and multi-layered events, such as socio-technical transition (Turnheim & Geels, 2019). This approach used theoretical terms from the preliminary conceptual framework, that being the MLP and the three justice tenets, to organise the data. This generated an historic narrative that was analysed to answer the research question. The deductive part of the method entailed creating four groups of codes which served as overarching categories based on theory. The first category involved the codes *before the transition*, *during the transition* and *end of the transition*, these codes denote the progression of the transition. The second category is based upon the dimension of the MLP to *niche*, *regime*, and *landscape*. The third group is based upon the regime pillars, namely *culture*, *politics*, *markets*, *science*, *technology* and *industry*. Lastly, the fourth group contains *distribution*, *recognition* and *procedural* to assign to justices and injustices. By assigning statements to these categories, it allowed for easier interpretation and tracing of the data by, for example, looking up *procedural injustices*, *before the transition* in the *regime* which relates to the pillar *culture*.

Interviews were coded using the same overarching categories determined by the literature research. An additional code group was created with the sub-codes *interviews* and *literature* to distinguish the two different groups of data. During the inductive coding process, new subcodes were derived from the data. These were assigned to the predetermined overarching categories. For example, the category *distribution* has codes such as *wage*, *health hazards*, and *pension*. While the category *landscape* was assigned the codes *political change* and *economic crisis*. In addition, these subcodes could get subcodes themselves, such as the code *economic crises* being assigned *labour shortages* and *oil shock*. See Appendix 8.1 for the full list of actualized codes.

In the case that literature was available in digital format, relevant parts were coded. They were not as extensively coded as interviews, only paragraphs instead of sentences. Because these parts could entail large swats of text, personal notes were added with a short summary of the content and context (these notes themselves were obviously not coded). Literature that was not available in a codifiable or online format was first analysed by making extensive notes. These notes were then coded to keep the research findings in one centralized database. However, as notes have an increased risk of

containing personal interpretation, they were assigned the code *notes*. This helped make distinctions between codified literature and notes.

This resulted in one database containing all relevant data, which enabled the creation of systemic overviews per relevant topic and the tracing of processes. These overviews were used to follow trends and specific structures/actors of the regime, such as the opinion on unions by dockworkers. The relevance of the different events and justices/injustices are based upon the frequency of related codes, the respective context of the data and connection to other data. Per period, i.e., before, during or after the transition, the following steps were taken. First, the landscape developments were analysed to understand the context in which the regime operated. Second, key characteristics of the regime were identified using the regime dimension for the preliminary conceptual model. Thirdly, the relevant and important justices and injustices in this period are determined and analysed. In this analysis, observations from the first and second steps are used to create a detailed understanding of the context and processes. For example, the loss in labour spots after 1979 must also be seen in the context of an economic downturn in the Netherlands. Fourth and last is the identification of possible theoretical lessons based on the constructed case study, these processes are further discussed in the reflection.

3.5. Reliability & validity

The goal of this research is to shed light on the relationship between regime transition and justices/injustices. Containerization in the Port of Rotterdam was deemed as an interesting historical case to study this relationship. To do so literary works, books and research papers were studied as they provided a rich source of information using a diverse selection of sources and methods. This diversity decreases the risk of missing out on relevant information. The literary works were either found using keyword searching, analysing references of pre-identified literature and asking experts for relevant data sources. Thereby mitigating the risk of excluding relevant literature. Five expert interviews were conducted to triangulate the data and find new insights. These were two academic researchers, Sjaak van der Velden and Evert Smit, the director breakbulk from the Port of Rotterdam, Niek Stam of the FNV and one external (pensioned) advisor of the ECT. All five individuals have long-standing connections with Port of Rotterdam. During the interviews, saturation was reached, suggesting that bodies of existing literature succeed in providing a clear and complete picture of the transition to the container in the Port of Rotterdam and the relevant justice and injustices.

To increase the reliability of the study and that no data was lost, a standardized process was used to analyse the data. This process entailed coding all relevant information. The codes were based on the theoretical dimensions of the conceptual model to help make sense of the data. This method resulted in a database in which data could be triangulated, cross-examined, and processes be traced and identified.

In relation to research ethics, interviewees were asked if they would consent to recording the interview as well as using their names in the research. Transcripts of the interviews are stored in accordance with the rules of the University of Utrecht. Non-public data was stored following the GDPR rules of the European Union and regulations applied by the Dutch government.

4. Results

The case study describes how justices and injustices occurred during the transition to the container in the Port of Rotterdam. First, an overview is given on the cargo regime by 1960 and its relevant structure in the Port of Rotterdam. Secondly, the development between 1960 and 1970 is described. These developments have yet little to do with the introduction of the container in 1966 but have implications later in the transition. The container companies grow rapidly after their establishment in the port; hence an overview is given on how this regime works and is characterized. By 1970 the transition starts accelerating, resulting in a relative tubulous time in the general cargo sector between 1970 and 1990. By 1990 the container is acquired the most market share in the regime, however, it is determined that by 2010 all processes regarding the transition have occurred.

4.1. *Developments in the Port of Rotterdam (1960-1970)*

In the following section, first, the breakbulk regime around 1960 is described, followed by the description of the container regime as of 1970. To provide a contextual background of the transition, the trends and events in the general cargo sector are described between 1960 and 1970. This includes a description of the niche development.

4.1.1 Working in the breakbulk regime by 1960

Before the introduction of the container, breakbulk was the dominant form of transporting general cargo, which is cargo that is not unitized, such as coal and grain. In the breakbulk regime, cargo could entail, for example, bicycles or crates with clothing, but not goods such as grain or oils, which are counted by weight or volume. The heterogeneous nature of general goods makes it hard to standardise the process of loading and unloading cargo. Therefore, within the breakbulk regime, manual labour, in combination with cranes and other technologies such as pallets and forklifts, was responsible for the movement of goods from and onto ships or other vehicles by 1960 (Levinson, 2016; Smit, 2013; Velden, 2013).

The high reliance upon manual labour meant that a great share of the total costs of handling ships went toward paying dockworkers, in addition to import fees, port fees, loss of cargo and other costs. The labour costs accounted for around half of the total expense of an ocean voyage. In total, processes at the docks were responsible for 60% to 70% of the total shipping costs. To what extent capital was used efficiently relied, therefor, largely on labour productivity at the docks. Hence investments in capital, such as large ships, were limited in profitability by labour productivity. As a result, large investments in infrastructure, ships and other capital assets were not as prevalent as we will see in the container regime. The technological innovations that occurred from the start of World War 2 were incremental, such as smoother pavements, pallets, and bigger or more manoeuvrable cranes. These innovations did increase labour productivity but did not heavily alter the established processes in the regime (Levinson, 2016, p. 27).

A standard practice in the regime by 1960 was to have roughly three groups of dockworkers responsible for different parts of the process. A group of dockworkers on the quay was responsible for moving the goods on and off pallets which were connected to a crane. As the crane operator navigated the pallet with goods towards the ship, hovering it above an open hatch, another dockworker would direct the pallet down into the hull of the ship. Within the hull of the ship, yet another group of dockworkers would stow the goods (Levinson, 2016, p. 23). The cargo had to be well secured and well balanced in the limited space of the ship to not move during the ship's journey (Busch, 2013). The

nature of these processes resulted in relative high incidents of theft and damages to cargo. As a result, there were also several administrative and repair jobs (Levinson, 2016; Smit, 1994).

The work environment in the breakbulk regime is related to *distributive* injustice. The work could both be dirty and dangerous, in 1978, 11% of breakbulk dockworkers sustained some form of injury, and 5 lost their lives (Horst et al., 1980, p. 7). A shipment of sugar meant heavy work, while untreated hides meant a dirty work environment (Horst et al., 1980; Turenhout, 1996, p. 6). In addition, the hulls of ships could be dark or freezing when working in cooling ships (Nortier, 1985). This increased the risks of damaging cargo, potentially leading to contamination of the work environment or accidents (Levinson, 2016). Lastly, the irregular schedules of breakbulk shipping meant dockworkers occasionally had to work during the night. Not only is this physically straining, but it also increases the risk of mistakes and injuries due to low light or fatigue (Levinson, 2016). This resulted in relatively high injuries, fatalities and other health-related issues at the docks, forms of distributive injustice (Levinson, 2016; Velden, 2013). Against these risks often stood relative low base wages, putting dockworkers at the lower end of the wage *distribution* in the economy (Smit, 2013; Researcher 2).

However, the workspace is also related to *distributive* and *procedural* justice. While the work could be conducted during heavy rains, sunny days made the work outside rather pleasant (Levinson, 2016; Smit, 2013). Dockworkers, interviewed by Ter Hoeven (1963), mentioned they appreciated the outside work environment. In addition, ships, cargo and employers could often change between days, leading to few days being the same. The dockworkers appreciated the diversity in work and looked with an aversion to the standardized and routine work in factories (Smit, 2013). Dockworkers often described dockwork as craftsmanship due to the need for expertise when dealing with diverse hulls of cargo. Not only did you had to know how to stow a ship correctly and efficiently, but you also had to take into account safety and correct handling practices to not strain your body too much. (Boot, 2011; Nortier, 1985; Smit, 1994). This meant that dockworkers generally had high autonomy over their work, determining their own work order and tempo to a certain extent. This high autonomy is the third aspect of the work that made work at the docks pleasant (Smit, 2013; Advisor ECT). In terms of *distributive* justice, dockworkers enjoyed the relatively diverse and outdoors nature of the work at the docks. In addition, in terms of *procedural* justice, the dockworkers had relatively much say in the decision process related to their work by being less dependent on routines and standards.

The nature of the work and its procedures gave rise to a unique dockworkers' culture. Because of the dangerous nature of the work, the groups of dockworkers had to be well acquainted with each other to work not only cost-effective but also safely. In addition, historically, dockworker groups were often hired by shipping companies to load or unload their ships. This meant continuous negotiations about wages and additional costs or benefits with employers. It was in the interest of the dockworker to be able to create a unified front against employers. Thereby increasing their collective bargaining power over the employer. With the absence of strict regulations, dockworkers often enjoyed additional surcharges, for example, for dirty work or overtime, increasing their overall incomes and negating some of the *distributional* injustice related to low base wages. Hence solidarity between dockworkers was an important feature of the dynamics within the docks, even when permanent employment increased (Levinson, 2016; Nijhof, 1988; Smit, 2013). However, this culture also contributed to the *recognition* injustice dockworkers faced by judgements from employers and people outside the docks. They perceived dock work, not always incorrectly, as dirty, dangerous and unschooled work. The distinct dockworkers culture made others believe that the dockworkers were rough and ill-mannered (Horst et al., 1980; Neuhoff, 1988; Researcher 1; Researcher 2). This is partly a continuation of a traditional view of dockworker as by 1960, the average dockworker had seen improvements in social-

economic living status, was often also a family man and became less unfriendly towards employers (Nijhof, 1988).

4.1.2 Emergence of the container

The modern shipping container has its roots in the U.S around the 1950s. The uniform dimension of a container provides opportunities to reduce labour costs via the standardization of handling processes (Busch, 2013). This improved the turn-over rate (the time it takes for a ship to be loaded and unloaded) as well as decreased the necessary labour hours per unit of cargo (Hayut, 1981). Furthermore, it also decreased other labour hours at the port, as port-related activities, such as controlling cargo, could now be done at other destinations (Wierks, 1994, p. 54). In addition, it provided increased protection against theft, decreasing capital losses and insurance costs (Busch, 2013). These reductions in costs made the container attractive as growth in the breakbulk regime suffered from the high labour costs. (Brooks et al., 2018; Levinson, 2016).

By 1960, however, there were many different container sizes across the container companies (Levinson, 2016). Levinson (2016) describes a long and complex process of establishing a dominant design. As more companies from different sectors, including maritime and railroad, started transporting containers the different designs of the container also increased. This ranged from size, material and fitting, making it harder to standardize processes. Hence the high number of different designs hampered the profitability of the container, leading to increased efforts to standardize the container (Levinson, 2016). Starting in 1961, the International Standards Organization (ISO) started standardizing the technical aspects of (freight) containers (Lewis, 2017). This provided more confidence for investors and the opportunity to share containers between companies (Levinson, 2016).

To enjoy these aforementioned benefits of the container, infrastructure had to be adapted or procured. This included cranes, quays, warehouses and the ships themselves, truck chassis, and trains to transport the container closer to their final destination (Levinson, 2016; Smit, 2013). The need for high capital investment meant that the container regime's economics differed from the traditional breakbulk regime. The container companies had to work with relatively high fixed costs (special ship, cranes etc.) against relatively low operational costs due to fewer labour hours necessary per kilo cargo. Because of this unequal distribution between operational and fixed costs, there are advantages to scale. With an extra additional kilo of cargo, the average cost per kilo decreases (fixed costs are divided over more cargo) (Driel, 1990; Levinson, 2016; Paardenkooper-Suli, 2014). The loading process was, therefore, much more time sensitive. generally any ship which was not sailing was also not earning any money (Driel, 1990, p. 178)

The high fixed costs can pose additional risks for businesses as they come with future contractual payments. To increase competitiveness and to be able to handle the risk related to these large capital investments, there is an increased tendency in the container regime to merge (Levinson, 2016). This holds true for the ship-owners and the terminals operators as they both deal with high fixed costs. These high fixed costs also constrain business strategies because these investments are hard to recover. Often contracts were long-term to ensure a more predictable cash flow to pay off the continuous costs of capital (Driel, 1990; Hayut, 1981). This is at the benefit of feeder ports, which are the largest ports from which containers are divided among smaller ports or transport hubs. As these ports grow in size, economies of scale are obtained (T. E. Notteboom, 2004). However, locational or technical limitations do still apply, such as the natural availability of local deep water ways (Hayut, 1981).

Working at these specialised container terminals differs from working at traditional breakbulk terminals. A container terminal is generally divided into the sea and land sides. At the seaside, the containerships are loaded and unloaded. First, a dockworker loosens the locks which restrain the containers on the ship, often, these dockworkers are referred to as sjorders. It is then via coordination between ship, quay, and crane that the container is loaded off or on to the ship. Specialized vehicles move containers between ships and the stacking areas. In these, often very large, stacking areas, the containers are stacked again by a crane (Smit, 2013; Adema & Van Den Berg, 2008).

4.1.3 Landscape pressures in the port

At the beginning of the 1960s two important landscape developments took place, which resulted in the Port of Rotterdam growing economically and affecting the breakbulk regime. The growth is to be partially attributed to the economic development seen in Germany. The high economic growth of Germany, often dubbed the “Wirshaftswunder”, meant increased throughput of goods in the Port of Rotterdam. The Rhine provided an easy and cheap route to move goods from and to the growing German industry in the area (Paardenkooper-Suli, 2014). By 1965 45% of the total breakbulk throughput in the port was shipped to or came from Germany (Smit, 2013, p. 118). The other landscape development is the rebuilding effort in the Netherlands due to the aftermath of the Nazi occupation during WW2. The Port of Rotterdam immediately saw rebuilding efforts after its liberation because the allies wanted to use the port for their logistical efforts. This meant that the heavily bombed port of Rotterdam was quickly refurbished with improved equipment and infrastructure. In addition, the rebuilding efforts led by the Dutch government resulted in increased economic activities in the Dutch economy (Nijhof, 1988; Smit, 2013). By 1960 the number of sea-based ships had doubled with respect to 1950, totalling around 24.000 (Smit, 2013, p. 114-116)

The general cargo sector participated in the rapid growth of the Port of Rotterdam. Between 1955 and 1965, the sector grew from 10,4 million tons to 18,7. The resulting increase in dockworkers made the breakbulk regime the biggest employer in the port (Smit, 2013, pp. 116–121). These companies were part of the Vereniging van Rotterdamsche Stuwadoors (VRS), which as a whole, handled around 75% of the total throughput in the port by 1966. The VRS itself was part of the Scheepvaart Vereniging Zuid (SVZ), providing a stronger collective bargaining position against the increasingly larger transshipment companies. In addition, it often acted as a representative during talks with governments and labour unions (Dicke et al., 2007; Smit, 2013, pp. 116–121).

Another landscape development was the rebuilding efforts led by the Dutch government. It established several governmental bodies overseeing rebuilding efforts to ensure no significant labour conflicts emerged. Therefore, these government institutions impact developments and labour relations in the general cargo sector. First, the establishment of the Stichting van de Arbeid in 1945 enabled national negotiations between employer federations and labour unions. It is partially responsible for increased stability within the harbour and companies by taking away some of the local negotiations to the national level. Secondly, the creation and enactment of the Buitengewoon Besluit Arbeidsverhouding (BBA) gave the government the power to suggest binding rules for Collective Labour Agreement (CLA). Thereby they could influence the wage of the dockworkers, in addition to other CLA conditions. Any actions against decisions based on the BBA were seen as actions against the state, leading to a practical strike ban. Thirdly, in 1950 the Sociaal Economische Raad (SER) was established to advise the government on social-economic issues. The SER included both employee and employer organisations, who were both assigned one-third of the seats while the other third was assigned to the government. This meant that as an employee organisation, such as a labour union, having a seat at the SER meant you had increased *procedural* power. Or in other words, by not having a seat, you had less influence

on decision-making processes. These changes resulted in improved collaboration between the unions and federations, leading to relatively stable labour relations and (medium) wage increases. However, as a whole, the unions and federations had to follow governmental policy, thereby restraining their options. For example, the government restricted the process of wage increases by employees to prevent inflation (Smit, 2016, p. 125-126).

The governmental framework devised after WW2, in addition to increased economic growth in the Port of Rotterdam and the Netherlands as a whole, resulted in labour shortages from 1950 onward to 1970. An increase in labour demand would normally lead to increased wages to match the supply of labour. However, in this period, the Dutch government, via the BBA, only allowed marginal wage increases. This wage politics led to three phenomena in the port. First, employers were forced to hire workers outside the traditional hiring areas. These new dockworkers had to commute daily between the port and their homes (Nortier, 1985, p. 72). By 1961 around 30% of the dockworkers (around 4.500 individuals) commuted daily (Smit, 2013, p. 121). These labourers were *procedurally* disadvantaged by being less organized because they were constrained by their long commute. Therefore, they could not participate as actively in decision-making processes (Boot, 2011). In terms of *recognition* injustice, commuters were not seen as fellow dockworkers, they were often seen as inexperienced and blamed for pressing down wages (Velden, 1982, pp. 56–57). This *recognition* injustice also translated into increased *procedural* injustice as the missing alignment also hindered their participation in decision-making processes. This relative lower *procedural* power and *recognition* injustice contributed to the *distributional* injustice of being often the first to be fired (Boot, 2011). While the percentage of daily commuters changed over the years, hiring dockworkers outside of Rotterdam would continue (Smit, 2013).

A second result of the wage politics, combined with a general labour shortage, was the emergence of so-called “*handelaars in arbeid*” (Merchants in labor). These labour-supplying organisations/individuals were often denoted as “*koppelbazen*” (Subcontractor), as they were intermediaries between employees and employers (Boot, 2011). Hence these dockworkers were further positioned from the decision-making processes, thereby having less *procedural* power over their work. In addition, the dockworkers hired via the subcontractors were often paid off the record, leading to occasions where these, often inexperienced, dockworkers were paid more than permanent and experienced dock workers (Smit, 2013, page 122). The resulting uneven *distribution* of wages would fuel future labour conflicts (Researcher 1).

A third result which could be partially attributed to the 1945-1963 wage politics is the decrease in casualisation. Historically dockwork often entailed casual employment, meaning that permanent employment was sparse. This was the result of breakbulk companies having to deal with the irregular supply of work. Therefore, there were fewer *procedures* to protect dockworkers against lay-offs, as employers needed the flexibility to quickly and cheaply lay off unwanted labour. Both dockworkers and unions were, for this reason, against casual work. This is not to say that they appreciated the freedom of the jobs, but that isn't directly tied to the permanence of their jobs (Nijhof, 1988, p. 70). With the high demand for labour, companies wanted to increase wages to attract new dockworkers. However, the then-current wage politics stated that dockwork was unschooled work, thereby capping the potential wage increases. Hence, companies had to compete for labour via other means. One of their strategies was to increase permanent labour spots (Nijhof, 1988, p. 81-82). In 1946 43,7% of the total workforce in the docks had permanent employment, by 1960, this had risen to 61.6% (Smit, 2013, page 122). By 1965 permanent employment reached 85%, which remained stable for the next 15 years (Nijhof, 1988). This improves *distributional* justice by providing a more stable income for dockworkers.

While the “*geleidelijke loonpolitiek*” (gradual wage politics) positively influenced the casualization in the port, it prevented meaningful wage increases. Generally, wages in the port were below the national average. By 1960 the labour shortage resulted in increased illegal payments and surcharges by employers (Smit, 2013, p. 156). While this may have provided *distributional* benefits to the dockworkers, illegal payments and surcharges did not increase sick pay or other benefits as they were calculated over their basic wage (Horst et al., 1980, pp. 37–38). By 1967 the “*gradual wage politics*” was gradually abandoned, enabling dockworkers to demand greater wage increases by during CLA negotiations, which is a form of increased *procedural* justice. Wage increased quickly resulted in dockworkers earning wages similar to other industrial workers (Velden, 1982, p. 218)

Besides providing increased job security and eventually higher wages, the employers on the docks also created the Havenvakschool to tackle low upward mobility and the *recognition* injustice dockworkers faced in the Netherlands. However, employers also hoped that this would help improve the image of dock work, therefore, helping with the hiring of new dockworkers. The Havenvakschool, established in 1953, provided opportunities for dockworkers to gain additional skills. Having finished courses would mean dockworkers became “schooled” work, thereby opening up additional economic benefits (Nijhof, 1988, p.81-83). It was part of a larger strategy by employers to “modernize” the workforce. By “modernize”, they effectively meant a less strenuous workforce (Smit, 2013). The Havenvakschool does improve all three justice dimensions. It did improve *recognition* justice by enabling some dockworkers to be determined as schooled labour. Additionally, it increased *procedural* justice by providing dockworkers with broader opportunities in the form of educational courses. Lastly, dockworkers who finished additional courses could be rewarded with increased wages, under strict governmental wage policies, thereby improving *distributional* justice (Nijhof, 1988; Smit, 2013).

While the course aimed at younger people failed to reach expectations, the school was successful under the SHB, Stichting Samenwerkend Havenbedrijven, group (Boot, 2011, p. 146). The SHB is the successor of the Centrale Voor Arbeidsvoorziening (CVA), established in 1955, which was in turn, was succeeded by the Haven Arbeids Reserve (HAR), established in 1966. It was initially created to distribute labour more optimally, providing steady work for dockworkers (Notteboom, 2010, pp. 74–76). Companies could signal the SHB when they would need more labor due to larger projects. The government paid part of the wages for the dockworkers to ensure little disruption in the economically important port. Hence dockworkers at the SHB were still being paid (slightly less) when there was no work, providing these dockworkers with a steady income. (Boot, 2011, p. 545; Smit, 2013, pp. 384–385)

The organisational rules of the SHB were described in the sector CLA. As of 1912, there was one CLA negotiated in the Port of Rotterdam. In 1960 the CLA’s were broken down, making a distinction between dockworkers and supervisory labour, in addition to technical labour, security and educational labour. The largest share of dockworkers was therefore covered by one collective CLA (Smit, 2013, p. 227). The improved bargaining position created increased *procedural* justice for dockworkers. On the other hand, the resulting *distributive* equality may not have been beneficial to all individual workers as you are less rewarded for individual achievements.

The beginning of the container in the Port of Rotterdam can be traced back to the first ship on the 29th of May 1966 (Paardenkooper-Suli, 2014). In the same year, the European Container Terminus (ECT) was established to facilitate the handling of container shipments, becoming the first dedicated container company in the container niche in Rotterdam. However, another reason for the establishment of the ECT was that it enabled the large investments necessary to handle containers. The ECT was a consortium of smaller breakbulk companies/stevedores and the NS. The Gemeentelijk Havenbedrijf thought that without the establishment of the ECT, too much competition would

decrease the competitiveness of the yet small container niche in Rotterdam. Thereby giving it a better chance to grow and compete globally. Even so, another container company would arise in 1968, namely Unitcentre. Unitcentre was established by the transport companies SHV and Furness (Smit, 2013).

Container companies were more efficient in terms of labour productivity (Smit, 2013). At these companies, they could handle 400.000 tons of cargo with 40 dockworkers. At the breakbulk companies, they would need 300 dockworkers for the same cargo tonnages. This translates to a productivity increase of 1.300 up to 10.000 tons per dockworker per year (Nortier, 1985, p. 81). As a result, the container throughput in Rotterdam grew rapidly. By 1968, 56.000 containers were handled, and in 1970, it had tripled to 156.000. This accounts for approximately 20% of the total general cargo throughput, of which most was handled by the ECT (Smit, 2013).

While container trade was growing in volume, the volume at breakbulk companies started to stagnate between 1965 and 1970. It was the result of unexpected stagnating growth, leading to physical overcapacity (f.e. warehouse) as in the previous year's infrastructure investments were issued. Therefore, breakbulk companies started to compete via prices among each other increasingly. This did not yet lead to layoffs. Additionally, external competition coming from foreign companies was increasing. Especially in the shipping sector, consolidations were occurring to invest in larger ships, among other reasons. To eliminate internal competition in the port, reduce costs and improve global competitiveness, takeovers and fusions occurred (Driel, 1990). As a result, the number of stevedores quickly decreased from a total of 40 registered at the beginning of the 60'ies (Kruif & Velden, 2015).

To sum up, between 1960 and 1970, the work of many dockworkers in the general cargo sector has yet little changed. The work at the docks is still relatively dirty and dangerous. However, due to labour shortages, dockworkers see increased labour security, an form of *procedural* justice. However, it also introduced the "*merchants in labour*" and commuters, which resulted in a larger portion of dockworkers. By 1967, the "*gradual wage politics*" was gradually abandoned by the Dutch government wages quickly rose closer to the national average. Hence overall, it seems that dockworkers see their social-economic position improve between 1960 and 1970, even without the need for more extensive collective actions in the form of strikes. However, at the end of the decade, the container terminals are established at the Port of Rotterdam. The absence of competition in this new industry and relatively high labour productivity resulted in high growth. However, during the first years in the port, the new container companies had yet little impact on the development of justice and justice. This would change when it starts to dominate the sector in the upcoming two decades.

4.2. *Regime transition 1970-1990*

The new decennia is characterized by economic stagnation, an international recession and increased inflation. While the 50's and 60's saw high growth and labour shortages, the 70's would see an end of this trend. In the latter part of the 70'ies the labour shortage will have transformed into a labour abundance (Boot, 2011, p. 545; Smit, 2013, p. 238; Researcher 2). The macro developments would further expose the difference between the container and traditional breakbulk, in terms of labour productivity and cost-effectiveness.

By 1970 there was still a general labour shortage in the ports, partially due to strikes in English ports resulting in extra work in Rotterdam (Nortier, 1985, p. 88). The labour shortage and growing inability to attract commuters had increased the use of subcontractors, who often supplied inexperienced and unschooled work. These workers were sometimes even paid more than permanent dockworkers,

resulting in a more unequal wage *distribution*. The labour shortage also resulted in employers creating combi functions and decreasing the number of dockworkers per team. This increased distributional injustice in workload, thereby also increasing the relative risk of injuries or damage. The sector-wide CLA reached in 1970 resulted in low wage increase as the unions followed the trend of moderate wage gains and focussed on improving secondary benefits. (Nortier, 1985, pp. 88–90; Smit, 2013, pp. 196–197)

The lack of substantial wage increases would increase tensions among dockworkers, eventually in the same year leading to a strike. The start of the strike is debated, but it most likely started at the Müller-Thomson terminal and quickly spread across the whole port. For almost three weeks, the strike would continue and include dockworkers from the breakbulk, SHB and ECT. Because the strike was not organized by any official labour union, we speak of an “wild” strike. Characteristics of such a strike are the absence of clear demands and the involvement of various smaller political groups, such as the Maoists KEN. Labour unions were competing with each other to take the lead, and by the second week, a group was formed to start negotiations (Smit, 2013, pp. 199–201). Among the significant wage increases was the incorporation of some of the surcharges in the basic wage. This is an improvement in *distributional* justice as it increases governmental benefits because they are calculated over the basic wage (Velden, 1982, pp. 140–141). The strike in 1970 was significant for the port as it ended 15 years of relative peace and showed the discrepancy between the labour unions and the dockworkers (Smit, 2013, pp. 199–201).

Tensions would keep on rising as labour demand started to decrease. By 1970 the ECT was still relatively small but would grow from 500 dockworkers to 1.200 by 1980. The breakbulk in the same period would see their workforce decrease from 11.100 to 8.500 dockworkers. This decrease is partial to fewer new hires in the port and reorganisations (Smit, 2013). This loss in labour is not only attributed to containerization but also to the increased mechanisation in the breakbulk regime. The use of pallets and Roll-on Roll-off terminals increased labour productivity (Driel, 1988, p. 44; Researcher 2). In addition, an economic downturn in 1972-1973 resulted in a further decrease in labour demand in the port (Boot, 2011, p. 490; Nortier, 1985).

The decrease in labour demand in the breakbulk regime was not cancelled out by expansion in the container regime. Instead, container companies deliberately looked outside the traditional hiring areas to find dockworkers (Smit, 2013, p 181; Researcher 2). They had two reasons for this, they were averse to the mentality of the dockworkers, deeming them difficult and “bad-tempered.” In addition, their jobs demanded workers who were more used to and accepted the solitary work conditions at container terminals. Therefore new dockworkers were largely hired outside the traditional hiring areas such as Rotterdam (Smit, 2013; p 181). This is a clear example of *recognition* injustices as traditional dockworkers are excluded from the hiring process based on their cultural affinities. This strategy by the container concerns did spark disgruntlement within the ranks of the dockworkers working in breakbulk companies. We must remember that many companies who joined a container concern also had daughter companies in the breakbulk. This strategy further fuelled worries about jobs security among dockworkers as they saw the container companies take an increasing share of the general cargo market, in addition to modernization efforts in the breakbulk (Marges, 2022; Nortier, 1985; Advisor ECT).

The conditions in the container companies were different. By 1975 many dockworkers at container companies enjoyed permanent employment. As noted, before, the container trade was less volatile therefore permanent employment posed fewer risks for companies and ensured them a steady base of dockworkers. Formal wages were also higher with respect to the breakbulk due to the increased technological aspect of jobs and the absence of surcharges (Horst et al., 1980, p. 5; Nortier, 1985, p.

85). While they enjoyed higher wages, the work at the container terminals continued 24/7 to pay back the high capital investments. There were initially four shifts a day, but work during the night is especially physically and mentally straining for the dockworkers and families at home. During shifts, employees were less able to socialize as jobs were physically further away from each other (Horst et al., 1980; Nortier, 1985; Velden, 1982).

By 1976 the economic downturn came with increased inflations, decreasing the real wage of the dockworkers. This *distributional* injustice, however, was countered by the *procedural* justice found in the CLA of the dockworkers. The CLA included a *procedure* of price compensation during inflation, thereby mitigating the effects of inflation on real wages. By 1976 the economic downturn became a recession. The Dutch government was of the opinion that a wage stop was necessary to stop the spiralling wages and prices. At the beginning of 1977, the labour unions in the port organized a port-wide strike. The dockworkers were able to keep their automatic price compensation while the labour unions had regained some of their lost reputation earlier in 1970 (Smit, 2013). The FNV union played an important role in this strike. According to Smit (2013, p. 203), the FNV relented to the pressure of the dockworkers and commission, thereby radicalizing in their approach.

This newfound reputation would, however, quickly dissipate again during the large strike in 1979. CLA negotiation at the beginning of 1979 led to disappointing results for the dockworkers due to the degrading economic position in the breakbulk. Via a referendum, the dockworkers in Rotterdam rejected the proposed CLA. No clear strategy was devised on what to do next, strike or negotiate? (Boot, 2011, pp. 176–178; Horst et al. 1980, p 5). A small strike in Amsterdam by tugboats provided the spark when they were threatened to be sued by their employers. Due to close connections and high solidarity between the dockworkers in the different ports, the strike quickly spread all across the harbors. (Smit, 2013, p. 204). The strike was denounced not only by parliament and the government, but also by the FNV and other labour unions. This gave the dockworkers a feeling of betrayal, giving them another reason to strike further, to regain their power (Boot, 2011, p. 180). About the reason for the strike Researcher 2 said: *In hindsight, it was a rearguard action. It was about wages, very much so about money, but behind that was the threat to wage security.*

The wild character of the strike once again meant that there were no clear demands yet. While in 1970, a collective demand was eventually formed, this time, different parties had different demands (Velden, 1982; Researcher 1). Many dockworkers, especially in the breakbulk, demanded an improved CLA. Dockworkers from the container companies would only participate for a few days and had their own demands, the implementation of five shifts instead of four. The unions, all the while, were secretly re-negotiating. However, their second CLA proposal (with an additional wage increase) was also rejected because it is now more than just about wages or CLA's, side-lining the unions. In the fourth week, after growing pressure and police actions, the strikers went back to work. The strike resulted in a defeat, and the second CLA proposal was finalized. The strike in 1979 would turn out to be a turning point as the unions had to change their strategy or lose their power in the port. It also showed the growing division between the breakbulk and the container regime, especially as the dockworkers from container companies got their five shifts (Smit, 2013, p. 203-207; Researcher 2).

The unions had once again lost credibility by not being able to satisfy the dockworkers. They had not taken into account to what extent the port had changed in the last ten years (Marges, 2021b; Researcher 1). By 1979 only a third of total general cargo was breakbulk, the rest was already shipped in containers (Smit, 2013, p. 206). In addition, their lack of social policy suggested that they were yet not aware or understood to what extent the breakbulk regime was threatened by the container (Marges, 2021b). Hence the unions found themselves in peril by misrecognizing the problems and fears of dockworkers, a form of *recognition* injustice. The 1979 failure was part of a

larger problem, of which one symptom was the increasing prevalence of wild strikes. The unions were not able to steer the collective action in the port effectively (Nijhof, 1988). Hence, a new strategy was adopted by the unions, specifically the FNV, who used the slogan “*strijd om technologisch vernieuwing*” (struggle for technological renewal). While in the past decades, the unions had mainly focussed on improved wages, this upcoming decade would see a more militant and sectorial focus on tackling economic and technological change per sector (Marges, 2021b; Smit, 2013). “*This means an form of radicalization. Higher demands and quicker to organize strikes*”: according to Researcher 1. In turn this translated into an increased focus on the uneven *distribution* of labour security and labour conditions instead of wages (Wierks, 1994, p. 13).

This new strategy *recognized* the fears and problems around job security for dockworkers. In turn, this improvement in *recognition* justice paved the way for the development of *procedures* aimed at improving job security for the breakbulk dockworkers. They would keep the whole port responsible for taking in redundant workers to deal with the shrinking breakbulk. The resulting slogan was “*geen man gedwongen de havenpoort uit*” (no man forced to leave the port), voiced by a new groups of union leaders called the “*spijkerbroeken brigade*” (denim jeans brigade) for their iconic denim clothing instead of the traditional suits. (Marges, 2021b; Smit, 2013; Researcher 2) This new strategy would result in new *procedures* in the form of increased defensive actions to preserve labour spots and existing institutions, such as automatic price correction (Velden, 1982, pp. 140–141; Smit, 1994). Organized actions would become smaller, shorter, but also more unexpected instead. This also gave the FNV more control over the strikes themselves (Smit, 2013; Turnbull, 2000).

This new strategy bore its fruits in 1980 when supposedly 250 workers at Müller-Thomason Rotterdam (MTR) would be laid off. The mother company Internatio-Müller was accused by the FNV of prioritizing their daughter companies in the bulk and container sector. This was not unique in the port, as consortia that entered the container market tended to sell or neglect their less profitable breakbulk arms (Driel, 1988; Marges, 2021a; Smit, 2013; Velden, 1982). Due to growing criticism and being denied layoffs by the judge, the concerns as a collective agreed to open up sectorial negotiation with the FNV to find a solution. During these negotiations, it was agreed upon early pension arrangements for dockworkers older than 56 years (keeping 90% of their last earned salary) and the transfer of 700 dockworkers to the collective labour pool, the SHB. This early pension scheme was applicable to the whole port. More importantly, to hold the concerns responsible for the labour issues, the union demanded a 2 for 1 scheme. For every dockworker that made use of one of the above schemes, they had to take in on one dockworker from the breakbulk. The national government would also participate in these negotiations as they partially financed the pension scheme and the SHB. This accord would be one of many similar following these negotiations. (Smit, 2013, p 209-211; Marges, 2021a).

Not shortly thereafter, another strike broke out in 1984 at a small stevedore company which would go bankrupt. Even though “only” 150 dockworkers would lose their jobs, the FNV organised a large strike. The FNV saw this as a matter of principle, they couldn’t be seen as traitors to their own slogan, “*no man forced to leave the port*” (Marges, 2021a; Smit, 2013). The SVZ, who negotiated on behalf of the employers, denied any form of obligatory hiring. Even so, another accord would be reached were again dockworkers would be transferred to the SHB, and the pension scheme would be extended with consent by the national government (Smit, 2013, p. 213). However, more significantly was installing a research commission Van der Louw to manage the employment issues in the port, thereby ensuring fewer conflicts in the port. This commission led to an accord which entailed no forced layoffs till 1990. To mitigate excess labour, the national unemployment fund would finance 70% of a special pool in the SHB. This provided increased *procedural* justice for dockworkers in the form of an official accord, which in turn provided increased labour security (Driel, 1988, p. 56).

As a result of the renewed strategy of the FNV, it was more successful in mobilizing large parts of the port to decrease the burdens related to the transitional dockworkers faced. The SVZ, which till this time negotiated on behalf of the employer's part of CLA and other labour-related policies, recognized the increasing power of the unions. Them being a central actor was part of this increase in power, as Researcher 1 suggests:

"It (SVZ) became more or less a stronghold where every time there was a strike, dockworkers would move to. [...]. Hence if we (the SVZO would not longer negotiate port-wide CLA's, and instead led employers negotiate individuals CLA's they would not be used as a symbol to direct anger towards."

As a reaction, it tried to decentralize the CLA structure with the idea that this would decrease the *procedural* power of the Labour unions. Instead, the unions enjoyed increasing procedural power at the company level. They used a new strategy called *pattern bargaining*. It entails beginning negotiation at employers where the best outcomes could be achieved, to then use these outcomes as leverage in future negotiations (Smit, 2013, p. 329; Union Leader 1). In addition, because the Unions now operated closer at the company level, they were more in tune with their members. Thereby decreasing the risk of wild strikes (Wierks, 1994, p. 66; Union leader 1; Advisor ECT).

The new strategy of the FNV also had implications for the breakbulk regime. Between 1970 and 1980, the breakbulk regime kept on decreasing in size. Even though technological improvements were adopted, and companies started to specialize in specific segments of the market, they kept handling less freight. The breakbulk was not able to keep up with these low freight costs in the container companies. However, not all goods could be moved off via containers, such as cargo larger than the standard shipping containers. This market segment, however, was partially starting to move away to other ports (Driel, 1990; Director Breakbulk). The union's strategies had hurt the competitiveness of the breakbulk companies. Besides disrupting the economic process in the sector, it also increased labour costs. Due to the union strategy, it became increasingly harder and, therefore, more expensive to lose unnecessary labour (Driel, 1990; Dicke et al., 2007). Driel (1990) attributes this strategy partially to the Rotterdam breakbulk companies losing market share to Antwerp.

The renewed union strategies less influenced the container companies as both strikes in 1981, and 1984 have in common that dockworkers from container companies did not participate in large force, if at all. This is partly explained by the fact that the container companies had their own CLA, therefore, container dockworkers were less tied to the collective welfare in the port. However, the first significant strike at a container company was in 1987. A large client of the ECT went unexpectedly bankrupt. Therefore, the ECT proposed to either freeze wages or lay off 250 workers. Unsurprisingly, a strike broke out, organized by the FNV. Because delays were expected, Sealand, also one of their biggest clients, threatened to move ships elsewhere. This new pressure on the ECT to end the strike changed the discourse. The result was no wage decreases but short-term reductions on secondary benefits. This strike suggests that even though container companies tried to keep the traditional dockworker culture outside of their company, they were not excluded from strikes. Additionally, it also shows the substantial power of shipping companies on container handling companies (Smit, 2013, p 217).

Two years later, in 1987, a surprise event occurred at the ECT. Two sister companies, Müller-Thomsen and Quick Dispatch had previously entered the container market. This resulted in additional (inefficient) capacity and extra competition in the port. Hence the two mother companies, Internatio-Müller and Nedlloyd, pressured the ECT to fuse with her two sisters (Driel, 1988, p 58). The fusion increased the labour force of the ECT by 1600 dockworkers, of which most eventually would work with containers after the new breakbulk arms were cannibalized a few years later (Kruif & Velden, 2015 p. 22). With these new breakbulk arms came the traditional dockworker culture, thereby ending the

successful exclusion of traditional dockworkers' culture in the ECT. Henceforth the hiring strategy of the ECT was officially ended, ending the related *recognition* injustice (Smit, 2013, pp. 217–218). In addition, the ECT became one of the largest employers in the port (Kruif & Velden, 2015 p. 22). The ECT created one CLA for the whole company, significantly benefiting dockworkers at the new breakbulk arms of the company (Smit, 2013, p. 218).

To conclude, the last two decennia changed both the breakbulk and container regimes. The continuous wage negotiation via the unions resulted in the average wage in the Port of Rotterdam being one of the highest in the Netherlands in the 80'ies, at both container and breakbulk companies, enhancing *distributional* justice (Smit, 2013, p. 234). In addition, in terms of *procedural* justice the dockworkers, especially in the breakbulk regime, enjoyed relatively high job security by the end of the 80'ies because of their successful collective actions. Especially in the years when the Van der Louw accord was active, companies were legally inclined to find other means to deal with excessive labour except for forced layoffs. Instead, a large share of older dockworkers used the early pension schemes or other existing schemes while still retaining significant parts of their standard wage, while younger dockworkers were moved to the SHB. A large share of dockworkers used these schemes to leave the port. However, while the labour abundance had decreased, it was not yet solved. (Driel, 1988; Union leader 1). In addition, the container hiring policy to wilfully and forcefully avoid hiring traditional dockworkers is a case of *recognition* injustice. These dockworkers were avoided for their cultural background, being identified as troublesome. This recognition injustice came to an end when the ECT had to take in her breakbulk sister (Smit, 2013).

4.3. Regime stabilization 1990-2010

Because of the takeover of Müller-Thomson and Quick Dispatch by the ECT the FNV saw a chance to bargain for a non-bulk CLA in 1991. This would contain every sector in the port, except the dry- and wet-bulk. The ECT, being one of the largest employers, had one of the most favourable labour terms and wages in the port. Hence a non-bulk CLA would create a more equal *distribution* of wages in the port, benefiting mainly dockworkers from smaller companies. The ECT'ers were of the opinion that such a CLA would not provide them with any additional benefits. As a result, the ECT'ers only participated shortly as a show of solidarity but left shortly thereafter. While the position of the ECT'ers is understandable, it is an example of the decline in cross-sector solidarity. Being one of the largest employee groups, the FNV was forced to concede its defeat due to a lack of volume (Boot, 2011, pp. 249–250; Smit, 2013, pp. 283–284).

The number of dockworkers in the breakbulk had decreased as most general cargo was stowed into containers and the companies saw increasing pressure from other international ports, such as Antwerp. (Smit, 2013; Director Breakbulk). While a healthy market for breakbulk still existed, many companies in Rotterdam chose to invest disproportionately in container handling, resulting in a loss of breakbulk shipping lines to other ports (Velden, 1982; Director Breakbulk; Advisor ECT). Due to the contraction of breakbulk in Rotterdam, it started to operate on the fringes of the general cargo sector. At the fringe, specialized services were demanded to handle cargo that could not be shipped via containers. Hence breakbulk was increasingly cargo that was either too long or too high for containers, for example, blades of windmills. We see, therefore, a continuation of the appreciation of skills in the breakbulk (Director Breakbulk; Union Leader 1). The breakbulk market in Rotterdam contained much smaller companies, as opposed to the few large container operators. Previously large breakbulk firms

had either gone bankrupt, sold off their breakbulk arm or continued in the container market (Smit, 2013; Velden, 2013).

These smaller companies often regulate labour issues internally as dockworkers at breakbulk companies are less unionized. Either there is an internal union regulating the CLA process, an external union negotiating the CLA, or no CLA (Union Leader 1; Director Breakbulk). What that exactly meant for these dockworkers, in terms of justice, is hard to say. On the one hand, they miss out on the collective *procedural* power from the Unions. On the other hand, as Union Leader 1 suggests, the mere presence of the FNV in the port means that companies without the presence of the FNV are still pressured to follow the general CLA's in the port. However, the director breakbulk does acknowledge that the secondary labour agreements are also of high quality in all breakbulk companies. The indirect pressure of unions can partially explain this. For example, suppose the distribution of wages becomes too skewed in the general cargo sector. In that case, there is an increased incentive for dockworkers to join a labour union which is not at the benefit of the employer (Union Leader 1).

With a decrease in breakbulk jobs and an increase in container jobs, the distribution of dockworkers in the general cargo sector had changed. By 1990 around 6600 individuals (including the collective labour pool called the SHB) worked in the general cargo sector, a stark decrease from 11600 in 1970. Between 1980 and 1990, a large portion of dockworkers was moved to SHB or other port companies in combination with favourable early pension schemes or exit schemes made possible by the national government (Smit, 2013; Boot, 2011). These schemes would continue until the end of the 1990's, after which most of the labour abundance had been negated (Smit, 2013, p. 190-191). By 1990 the container companies employed 45% of the total dockworkers, even though they used significantly fewer dockworkers per kilo of cargo handled (see table 4). By 2010 this had increased to 76%, though this number might be a bit inflated due to the absence of the SHB, which went officially bankrupt in 2010. Most likely the number is a bit larger, closer to 60% just as in 2000. This decrease is part of a larger trend depicted in figure 3.

Table 4: data based on Smit (2013). *by 2010 the SHB was bankrupt.

Number of dockworkers employed in the general cargo sector and the labour pool (SHB) (1990-2010)						
Sector	1990	Share	2000	Share	2010	Share
Breakbulk	1625	25%	976	19%	440	10%
SHB	1648	25%	905	17%	0*	-
Container	2949	45%	3014	58%	3537	76%
Roll-on roll-off	377	6%	338	6%	648	14%
Total	6599		5233		4625	

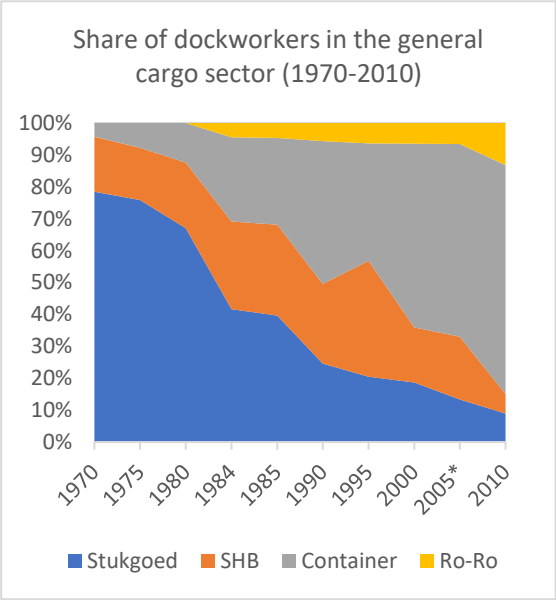


Figure 3. Share of dockworkers based upon Smit (2013), table 5.5 and table. 2005* is an approximation based on 2003 data (table 7.4)

This real decrease in dockworkers meant that the share of sjorders in the port had increased, showing how the decrease in total dockworkers had advantages for some. By 1991 around 450 sjorders were active in the port. While the *distribution* injustices related to dangerous and dirty work in the general cargo sector had decreased with the increase in automation and containerization, “*sjorren*” still contained these characteristics (Advisor ECT, Research 1; Union Leader 1). In addition, sjorders still had to deal with the *recognition injustice* of not being seen fully as dockworkers (Smit, 2013, p. 286-288). The loss in labour spots in the port meant that sjorders became relatively more important due to the increased share of dockworkers they represented. Their wage was, however, at the lower end of the *distribution* due to the “unskilled” nature of the work (Smit, 2013).

This wage inequality led to a wild strike after unsatisfactory CLA negotiation in July 1991. The strike was taken over by the FNV, who wanted to use the strike to put extra pressure on the employers. The employers demanded, in turn, that the sjorders were to become multifunctional in the port. In most CLA's, however, it was agreed that only SHB'ers could be hired during peak hours. This multifunctionality would mean increased *procedural* justice for sjorders, as they had increased say of where or where not they would work, but it would also mean more competition for the labour pool, the SHB. At the end of the strike, an agreement was reached, sjorders did get additional wage increases and would become multifunctional in the port. This success for the sjorders meant increased *recognition* in the port and improved *procedural* power over their jobs, at the cost of the position of the SHB (Smit, 2013, pp. 286–288)

The SHB had seen an influx of dockworkers and started to hold a greater share of dockworkers in the port (Boot, 2011; Dicke et al., 2007, p. 77). The dockworkers that were placed in the SHB faced increasingly *recognition* injustice (Researcher 1):

“People often said the companies send only weak and lacking dockworkers to the SHB. In addition, the SHB saw an increasingly ageing workforce, leading to more sick leave. It was seen as the cesspool of the port”

Simultaneously, neoliberal capitalism was increasingly taking hold in Dutch politics. This ideology emphasizes the importance of a free and deregulated market where competition creates improved economic gains. As a result, markets started to be deregulated, and public institutions became increasingly privatized, intending to increase competition (Boot, 2011, p. 261; Smit, 2013, p. 271). This, in turn, meant that social issues would become increasingly hard to solve via governmental interference (Union Leader 1). As Union Leader 1 states: *“Back then (before 1990), solutions were easier to find”*. In line with this ideology, the government decided that the regulation of peak and valley hours was the sector's responsibility. As this was the main goal of the SHB, her subsidy was stopped by 1993. It was to become and successful privately operated entity in the port. To ensure the success of this transition, finance was made available for reorganization and training (Boot, 2011, p. 550). The companies that supplied the SHB with dockworkers became stockholders. In the new SHB CLA, a purchase guarantee in addition to a *“hiring preference”* was added. Lastly, the new CLA's stipulated that SHB'ers would be allowed to work in other ports and fulfil different kinds of (port-related) to ensure enough work (Smit, 2013, p. 272). So supposedly the SHB'ers saw an increase in *procedural* justice due to this increased protection of work. However, as we will see, this was not enough to ensure long-term viability.

By 2009, however, the SHB would go bankrupt after being hit hard by the 2008 crisis. 450 suffered by losing their jobs as collective actions were unsuccessful. The remaining dockworkers would continue in a restart of the SHB (called the RPS) (Smit, 2013). Smit (2013) mentions three reasons why the privatized SHB was already in a dire position by 2008. First, the labour pool consisted of old and largely

classically schooled breakbulk workers. Therefore, they weren't always equipped to work at container terminals and saw a higher rate of sick leave. Secondly, the employers were first and foremost customers, leading them to be averse to price increases. Thirdly and lastly, competition for the SHB had been growing in the port. Not only were sjorders increasingly in competition with SHB'ers after the strike in 1991, but companies were also improving their own internal, such as the DUG (Delta Uitzend Bureau) at the ECT (Boot, 2011; Smit, 2013).

At the container terminals, continuous technological development took place to improve productivity. Parts of the loading and unloading processes done by cranes were being automated, where either the dockworkers in the crane became more or less an observer or steered the crane from a remote operation centre (Smit, 2013, p. 183-187; Advisor ECT, Union Leader 1). In addition, moving containers to stacking areas is increasingly done via automated vehicles. At the stacking centre, cranes are largely automated due to the predictable dynamics in the terminals and strict planning. With developments in computer science, other processes were also increasingly automated to increase productivity. (Smit, 2013, p 183-187; Advisor ECT). With this increasing automation and robotisation, dockworkers saw a further decrease in *procedural* autonomy. However, it also decreased the *distribution* of physical straining work, having to stand outside of the crane cabin during heavy weather or sit in the awkward sideways position on a stacking vehicle (Advisor ECT, Union Leader 1; Adema & Van Den Berg, 2008). This loss in the variety of jobs directly at the quays also limited the career options for operational dockworkers as ECT advisor simply states when asked about vertical mobility: *It is not present at all*. Or, more elaborately explained by Union leader 1:

“Career development opportunities are increasingly becoming less because of continuous automation and robotisation. [...] back in the day, you could be offered an office job. You still have supervisor functions, but that is a managerial position [...] and something which not everyone can become.”

However, on the quality of the secondary labour conditions and the average wage, all interviewees unanimously agreed that it was excellent with respect to other similar industries. This *distributional* justice can be primarily explained by the continuous labour actions, the strong presence of unions and the balance of *procedural* power (Research 1; Advisor ECT; Union Leader 1).

By 2010 the container regime was responsible for handling 80% of the total general cargo throughput. The market share of the breakbulk companies had decreased to 10% and was now operating in niche markets within the regime (see figure 4). The breakbulk regime contains increasingly specialized companies that can deal with large and awkward cargo or have specialized terminals that can compete with container companies' high productivity (Director Breakbulk; Union Leader 1).

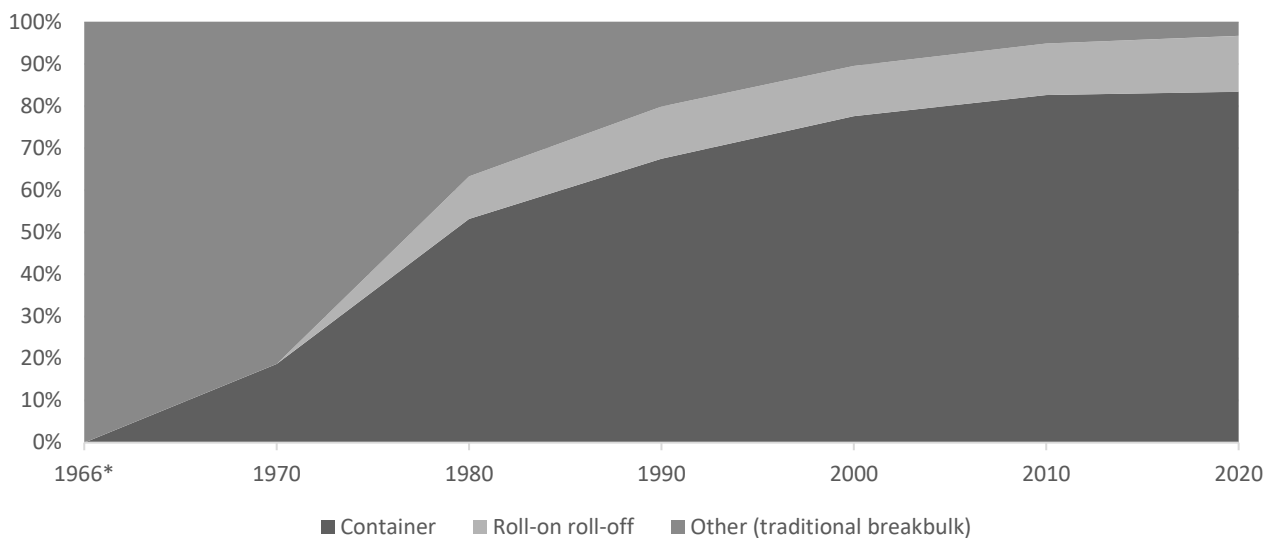


Figure 4: composition of the general cargo sector in the Port of Rotterdam based on throughput in tons (1966-2020). Data based on Smit (2013) table 5.5 and 7.5.

Action by unions has also shifted to smaller and shorter actions. A large share of these actions is directed at problems in the container terminals. This is not due to increasing problems in the container terminals, but rather because they are one of the largest employers in the port (Smit, 2013). Notably, a few large actions have taken place between 1990 and 2010 besides those in 1991 (Smit 2013; Research 2). These were against European Port Package, which stipulated that ship labourers would be allowed to handle their own ships. This would put them in direct competition with dockworkers, and especially sjorders (Smit, 2013, p. 301-302; Union Leader 2). In addition, an employer-employee coordinated strike occurred to take back control over their pensions (Kruif & Velden, 2015; Union Leader 2). While both strikes were successful, they had little to do with the transition to the container in the Port. Instead, it shows two notable things about the current role of unions in the container regime. First off, unions are still more than capable of organizing port-wide actions, even with the significant decrease in total dockworkers. Second, the strikes against the European Port Package were organized across multiple European docks, showing that just like the employers, the unions also have started to operate internationally. This was necessary as companies, especially in the container regime, were increasingly consolidating. Thereby by working together, the unions were able to create a more unified front against the globalize employers (Smit, 2013; Union Leader 1)

To sum up, the transition from the breakbulk to the container has ended in 2010 as indicated by the lack of actions related to the transition, the composition of the total throughput and number of dockworkers in the breakbulk. The container regime now dominates the general cargo sector, while breakbulk companies operate in specialized niches within the Port of Rotterdam. For the dockworkers, this meant that their work had drastically changed. In terms of *distributive* justice, they now do earn relative high wages and have good secondary labour agreements. This *distributive* justice is used to pull up wages in other sectors and the port as a whole. In terms of *procedural* justice, we see that the dockworkers have lost some autonomy over their work, a process which seemed to continue with further expectations of automation and robotisation. However, if we look at the *procedural* power of dockworkers on negotiations, we see a continuation of the previous

breakbulk regime. Unions still have a significant presence in the port, leading to a strong collective bargaining position for dockworkers in companies with high unionization rates. Even while the CLA's had fractured, the dockworkers together with the Unions, were able to retain many historical CLA institutions. Employers have more or less given up on trying to keep out the traditional dockworker culture. The increase in *recognition* justice is partially the result of the perseverance of the culture at the docks.

5. Reflection

Based upon the analysis of the case study, three processes were identified and discussed that describe changes in justice dimensions in the regime during the transition. These processes are the process of cultural exclusion, the process of reinforcing justice and the process of injustice induced strategizing. While these processes were based upon empirical observation during this study, similar processes were found in the literature. Based on these findings and the limitations, avenues of further research were identified to advance our understanding of the relationship between justice and transition.

5.1. *Process of cultural exclusion*

The process of cultural exclusion is related to *recognition* injustice as it refers to a process of exclusion based on culture. In the port of Rotterdam, traditional dockworker culture was seen by container companies as problematic due to adversity to solitary jobs, routine-based work and being highly prone to strike. Most container companies were either part of consortia consisting of previous breakbulk companies or had sister companies in the breakbulk, so they were familiar with the culture. Hence their hiring strategy had the goal of deliberately trying to exclude dockworkers based on their culture. This process of cultural exclusion was partially made possible due to the absence of *procedural* justice for dockworkers. They were not able to exurb significant power to change the hiring procedures. This would later change when unions would increasingly focus on the new container companies. Hence, cultural exclusion is also tied to *procedural* injustice, for otherwise, the exclusion could be partially absolved.

Similar processes have been observed during other transitions. Because of the need for climate mitigation strategies, some countries have started or have already completed phasing out coal as an energy resource. This phase-out of coals often goes with severe changes in coal mining communities as jobs in the mines disappear (Della Bosca & Gillespie, 2018; Parry, 2003). However, there is a difference between the coal and container transition. In the general cargo sector, activities shifted for a large part from breakbulk to the container regime. While there was a loss in total jobs locally, part of the job losses in the breakbulk were cancelled out by new jobs at container companies. In many coal mining areas, the total job decrease is not blunted by an increase in jobs in another local regime (Della Bosca & Gillespie, 2018; Franks et al., 2010; Parry, 2003). However, like dockworkers, coalminers often have their own distinct culture (Abreu & Jones, 2021; Wicks, 2002). This distinct culture may provide a basis for an employer to deny an individual equal work opportunity. In qualitative research by Strangleman (2001), previous coal miners talked about their experience with employers being reluctant to hire them because mining jobs are often negatively associated with undesirable traits. One such trait being, same as at the docks, the strong drive to unionize. Due to these similarities, the coal phase-out may be an interesting avenue to further explore the processes of cultural exclusion in transition.

5.2. *Process of injustice induced strategy change*

The process of injustice induced strategy change relates to actions by unions in the regime. By 1971 the container companies were rapidly growing, resulting in new injustices occurring or growing more significant. First, breakbulk dockworkers were not given equal chances for employment spots at container companies, a form of *recognition* injustice. This injustice is tied to *procedural injustice* as dockworkers in the breakbulk weren't yet able to exurb sufficient pressure on the container companies

to change their hiring strategies. Lastly, while both jobs in the different companies had pros and cons, generally, pay at container companies was better. Thereby creating an increasingly skewed *distribution* of income between the two groups. These injustices resulted in tensions, fears and unhappiness in the breakbulk and played an essential part in the large strike of 1979. During this strike, in addition to previous strikes in the same decade, unions failed to stand by the demands of the dockworkers. This showed that they were insufficiently up to date on what had happened, what played and what was happening in the breakbulk. Due to this failure, pressure from the dockworkers increased due to prevailing and new injustices. As a reaction, the unions took a more radical turn to preserve their legitimacy, which proved successful. This strategy entailed a substantial bargain (no forced layoffs) and promises of quicker and more severe strikes. They were able to improve *procedural* justice for dockworkers by strengthening their bargaining position. This led to no forced layoffs and instead respectable early pension schemes, exit schemes and expansions of the SHB.

In this process, a social institution allied to the dockworkers, which existed in the regime before the transition, successfully reorganized itself due to indirect pressure from new and grown injustices. It suggests that when a new injustice occurs or grows larger, affected groups may seek out new strategies when existing strategies do not work effectively. Dockworkers threatened the unions to stop their memberships and join more radical social justice groups. This successfully forced unions to change their strategy by threatening their relevance in the port. The new strategy by the unions was more focussed on the injustice experienced by dockworkers and the injustices that were expected to develop.

Similar processes in labour unions can also be observed in the mining regimes which underwent transitions. For example, Manky (2017) describes the development of new strategies by mining unions in Peru as a reaction to new injustices due to changes in the mining regime. This change entailed new and further accommodation for miners and their families. This led to longer commute hours, decreasing the time they could spend on other (family) activities. To tackle these new injustices, the unions changed their demands, started to bargain together, allied with regional players and created associations with other unions (Manky, 2017). Or the role of the mining labour unions in Poland directly after the fall of communism. The already weakened mines were faced with a new threat, increased national competition by opening up the Polish markets. The miners were faced with future lay-offs, low labour security and decreasing wages. The unions changed their demands to the relevant contexts and problems and organised large strikes. Their strategy successfully gave them increased *procedural* power over restructuring the Polish mines. (Ganowski, 2007). Ganowski (2007) also briefly touches upon the failure of other labour unions in Poland to gain a similar result. He attributes part of this success to the uniqueness of the mining communities, showing relatively high-peer solidarity and being fast to mobilize, similar to dockworkers in the Port of Rotterdam. Hence an interesting topic to further explore the process of injustice induced strategy change is what parameters can explain why or why not unions may alter strategies during transitions.

5.3. *Process of virtuous justice cycles*

The process of virtuous justice cycles describes how an improvement in one justice dimension can lead to an additional positive reaction in another justice dimension. The increased *recognition* of the perils and worries of breakbulk dockworkers by labour unions after the 1979 strike resulted in increased *procedural* and *distributional* justice. First, more *recognition* justice led to the Unions, mainly the FNV, adopting a more radical strategy. Because of this more radical strategy, the Unions were more effective in interfering in the hiring process and reorganising the breakbulk and container companies, therefore improving the *procedural justice* for the dockworkers. In turn, this resulted in

no forced layoffs, favourable exit schemes and the expansion of the SHB, limiting the *distributional* injustice induced by decreased labour spots in the general cargo sector. The empirical example suggests that *recognition* justice can lead to *procedural* justice, which in turn may lead to *distributional* justice. However, in the case of sjorder we also see a positive relationship between *procedural* and *recognition* justice. The sjorders namely gained increased *procedural* power by being allowed to do different kinds of jobs after 1991. This, in turn, resulted in sjorders becoming more *recognized* in the port.

To improve our understanding further of the process of virtuous justice cycles during transitions, insights can be taken from other fields such as business, sociology and psychology, especially regarding the relationship between the three-justice tenets (Bos et al., 1997; Gustavsson et al., 2014; Hauenstein et al., 2002; Ruano-Chamorro et al., 2021; Walker et al., 1979). For example, Ruano-Chamorro et al. (2021) described eleven possible criteria that can result in a positive effect of *recognition* justice upon *procedural* justice. By collecting and connecting these theories, a greater understanding of *virtuous justice cycles* can be reached. Thereby providing research with an extensive toolset to understand and describe the relationship between justice and transition.

5.4. Limitation

This research encountered some limitations. This research was primarily based on the analysis of secondary sources. Even though secondary literature provided abundant data sources, expert interviews were added to supplement the data. Great care was taken to ensure that no relevant sources were missed. This included methodologically going through the bodies of literature and inquiring experts, among which the maritime museum in Rotterdam, for recommendations. It can still be the case that research of primary data adds new insights on the topic. Additionally, this research focussed on the development of justice and injustice of dockworkers in the Port of Rotterdam. It has therefore not looked at the social-economic impacts of the transition on the surrounding regions. Literature has shown with the container coming into Rotterdam, the surrounding infrastructure, businesses, and neighbourhoods changed with it (Nijhof, 1988; Paardenkooper-Suli, 2014; Smit, 2013). While it was outside of the scope of this research, it may be an avenue for further research.

A limiting factor of a historical case study is its generalizability to other cases (Bryman, 2016; Yin, 2018). The same holds for the case study on containerization in the Port of Rotterdam, as there is a unique historical and socio-economic context. The transition starts roughly 15 years after the liberation of the Netherlands from Nazi Germany. The rebuilding efforts resulted in a port modernisation, increased economic growth and governmental constrictions on, for example, wages, to ensure economic stability. As a result, the port saw high growth after the war, but also labour shortages. This created a unique context in which the container entered the port.

Further developments were characterized by a number of economic and social-political developments, such as the liberalization of Dutch Politics starting in the 1990s. While these contextual developments may limit the generalizability of the results, they also provide insights into how certain contextual developments may influence transitions and the development of justice. For example, the solutions found for the labour abundance between 1980 and 1990 involved multiple millions of euros from the national government (Smit, 2013; Boot 2011). Without this government support, it is fair to assume that issues of labour abundance would have become a much larger and messier problem. However, with the liberalization trend (starting in the 1990s), such government-funded schemes became much

less likely (Union Leader 2; Researcher 1). Hence, while the role of the government in the 1980s was unique, it also gave insight into how a national government can mitigate injustice.

Two regime factors that limit the generalizability of the case study are the relatively high number of labour conflicts during the transition and the pace at which containers took over the general cargo sector. The relatively high number of labour conflicts can be primarily attributed to the relatively strike-prone dockworkers' culture in the general cargo sector and the high unionization rates seen during the transition. This resulted in a rather large number of strikes, of which unions organized most. This form of collective action had some excellent success for the development of justice for dockworkers, for example, by retaining the automatic price correction. These reactions are also partially related to the pace at which the container dominated the general cargo sector. In only twenty years, the container companies handled more than 50% of the total general cargo throughput. The speed of this transition had clear effects on the regime. Between 1970 and 1990, the number of dockworkers in the regime halved, while the decrease of dockworkers in the breakbulk regime was even greater. This loss in labour spots and reduction in labour security, among other social issues, caused several strikes in the port during the transition. The intensity at which the transition develops, due to the container's impressive growth and the dockworkers' flammable nature, provided an interesting and clear case to study the relationship between transitions and justice/injustices.

5.5. *Further research*

While the results are unique for the transition in the port, the derived theoretical processes and resulting MLP-Justice framework can be explored in further research. Similar processes were identified in the literature, especially in the transition in the coal mining regimes. In addition, this research looked at the development of justice and injustice of dockworkers. Still, during this research, it became clear that the transition also significantly affected the surrounding areas.

The transition in the coal mining regime could be an interesting research area. As discussed, similar processes are observed in the coal mining transition. This is likely the result of similarities in terms of culture and unionization between the regimes. However, the case of the coal mining regime also provides two interesting dimensions that were only limitedly present in the case of containerization. Coal regimes are much more characterized by power struggles involving political actors and civil society. In addition, the role of climate change provides a landscape pressure not present during containerization (Abreu & Jones, 2021; Renn & Marshall, 2016; Strangleman, 2001; Wicks, 2002). Due to these similarities and differences, the coal regime might provide an interesting case to further explore the theoretical process and the conceptual model.

Two specific cases are identified. The more finalized transition in Germany and the current transition in the Australian coal mining regime. Australia is one of the largest producers of coal (Liu et al., 2021) and has recently made increasing moves to phase out coal in favour of renewable energy (McKay & Stringer, 2022). As coal has played a central role in many Australian communities, the phase-out of coal as an energy resource will likely severely impact regional communities (Della Bosca & Gillespie, 2018; Franks et al., 2010). Because it is happening currently it may provide researchers with detailed information on the development of the transition and justice/injustices.

Another interesting case is the German coal mining regime which is a more finalized transition. Coal mining has been an essential driver for post-war economic growth in west-Germany. The German case involves some interesting landscape developments, namely the involvement of the European Union, the unification of Germany in 1990 and the role of climate change (Brauers et al., 2020; Renn &

Marshall, 2016). In addition, the more finalized debate on the phase-out of coal, with respect to Australia, can give insights into the role of civil society in developing justice for workers during a transition. These different landscape developments and actors may provide an interesting case study to examine the relationship between justice and transition.

Lastly, another avenue for further research to understand the relationship between justice and transition may be on the developments in traditional dockworkers' neighbourhoods. As discussed previously, the effects of the transition on outside structures or actors were not within the scope of this research. However, during this research, it became clear that the traditional dockworker's neighbourhoods were in flux before and changed during the transition (Nijhof, 1988; Smit, 2013; Researcher 2; Union Leader 1). The transition decreased labour demand, changed the nature of work, and moved many port activities further from Rotterdam (Smit, 2013; Union Leader 1). In addition, the composition of these neighbourhoods, in terms of ethnicity and occupation, also changed (Union Leader 1; Director Breakbulk). Furthermore, night shifts became more prevalent with the transition, which has implications on one's family life (Union Leader 1). Hence, studying traditional neighbourhoods during the transition may give interesting insights into how a transition may influence the development of justice and injustice at the communal or family level.

6. Conclusions

This research aimed to expand our understanding on the relationship between socio-technical regime transitions and the development of justice and injustice by answering the following question: *How did justice and injustices for dockworkers develop during the transition from breakbulk to container regime in the Port of Rotterdam?* To answer this research question, a case study was conducted on the transition from the breakbulk regime to the container regime in the Port of Rotterdam. A preliminary conceptual framework was devised which utilizes the Multi-Level-Perspective and the three-justice tenets *distributional, recognition and procedural* justice. The case study was based on an analysis of secondary literature and expert interviews. The results provided an in-depth overview of how justice and injustices for dockworkers developed during the transition to the container regime.

In the general cargo sector, the transition to the container regime coincided with the development of new and changes to existing justice and injustice. The introduction of the container was preceded by landscape development, such as the moderate wage politics and high economic growth. With the introduction of the container, the role of labour changed in the general cargo sector. The less labour-intensive container companies quickly grew out of their niche, to the surprise of unions, government and breakbulk companies. Additionally, container companies were not keen on hiring traditional breakbulk dockworkers due to their distinctive culture, a clear instance of *recognition* injustice. As a result of the transition, the *distribution* of jobs started to shift at the expense of dockworkers in the breakbulk. The resulting concern over job security and declining economic prosperity increased tensions in the port, especially among breakbulk dockworkers. Tensions reached their peak in 1979, after which the unions were forced to adopt a new radical strategy. This new strategy successfully increased the say of dockworkers in *procedures* regarding the retention of existing institutions, labour security and lay-offs. This led to favourable schemes regarding the mitigation of *distributional* injustice as the result of decreasing labor spots in the breakbulk regime. The negotiated alternatives to forced layoffs resulted in the traditional dockworker's culture taking increased hold in the new container regime, which had to let go of the strict hiring practices, ending this *recognition* injustice. Between 1990 and 2010, a large share of strikes in the general cargo sector was either related to port-wide issues or to issues in the container regime. Together with the fact that the total general cargo throughput was around 80% containers, it suggested the new container regime now dominated the general cargo sector, completing the transition. All in all, labour-related justices and injustices in the container regime differ from the previous breakbulk regime. *Distributional* justices characterize the container regime in the form of relatively high wages and less physical straining work. While in terms of *procedural* injustice, dockworkers had less say over work processes than they had in the previous breakbulk regime. Even with a new configuration of justice, dockworkers in the newly developed container regime show a continuation in being quick to confront injustices.

This research also has some limitations. First of all, this research was based on an analysis of secondary sources. Although ample secondary literature was available on the topic, expert interviews were added, and great care was taken to include all relevant sources by using a mixed data collection approach that included a reference analysis and the consultation of experts. It might still be that research of primary data adds new insights into the topic. Additionally, this research has focussed on developments of justice during the transition in the Port of Rotterdam. It has, therefore, not looked at the effects of the transition on the surrounding regions, especially the traditional dockworkers' quarters in Rotterdam. Additionally, there are some factors that limit the generalizability of the case. First, there is the historical context, the transition started in the post-war period of the Netherlands, where changes in the regime occurred due to high post-war economic growth and policy restrictions

on wage increases. Second, there is a broader political-economic context during the transition. These developments constituted economic fluctuations and changes in Dutch politics. Third, the transition coincided with a relatively high number of labour conflicts that affected the development of justice and injustice. This is essentially the result of the distinct dockworkers' culture, generally high unionization and the absence of strict governmental restrictions on collective actions. Fourth, the transition happened quite rapidly. Between 1970 and 1990, the share of the total general cargo throughput that was shipped in containers increased from around 18% to 67%. The speed of the transition had implications for the phase-out of existing and the development of new regime structures, which in turn influenced the development of justice and injustice. This raises the question if a slower pace may have different effects on the development of justice. Further research could determine whether this is indeed the case.

Mindful of the limits on the generalizability of the finding, some theoretical and policy implications were derived. The theoretical processes are those of cultural exclusion, of injustice-induced strategy change and the of virtuous justice cycles. The process of cultural exclusion entails the *recognition* injustice-based process of excluding a specific group based on cultural characteristics, such as the initial exclusion of traditional dockworkers by container companies. The process of injustice-induced strategy change describes how workers and unions formulate a new strategy due to acute pressure because of increased injustice for dockworkers. The process of virtuous justice cycles describes how a positive development in one justice dimension may positively influence another justice dimension, such as the increased *recognition* of fears and problems by unions resulting in *procedural* justice as the result of their new strategy. Further research could investigate the presence of these processes in other cases, as well as expand our knowledge on how these processes develop. The phase-out of coal has been identified as a possible avenue for further research (Franks et al., 2010; Ganowski, 2007; McKay & Stringer, 2022). For it consists both of historical cases as well as present cases due to global transitions to sustainability. Two regional coal mining regimes are identified, the present phase-out in Australia and the more finalized transition in Germany.

In terms of policy implications, a notable observation of this case study is the role of the labour unions and the SHB during most of the transition. The high union participation, relative few governmental restrictions on union activities and radical union strategies resulted in intense interference by unions to minimize the development of injustices during the transition. One of these actions was the utilization of the SHB to mitigate some of the *distribution* injustices related to the labour abundance. Initially, the SHB was an institution financed by companies and the government to help deal with the volatile workload in the port. Due to pressure from unions, companies in the port and the national government agreed to expand the SHB. Therefore, the SHB was used as a means to decrease forced lay-offs in the breakbulk regime while still allowing some restructuring to occur. Whilst there were downsides, such as the low permanence of jobs and *recognition* injustices, it did *distribute* a steady flow of work and income among SHB dockworkers. The SHB can serve as an example of how a general labour pool may help deal with the *distributional* injustice of sudden shifts in labour demands during transitions. In addition, the role of the labour unions during the transition to the container shows how high unionization and tolerance of radical labour unions can affect the development of justice. For ongoing or future transitions, it may therefore be beneficial for governments to think about how to remove limits and constraints on unionism. An option can be inviting labour unions and their members to more actively participate in creating a just transition, for example, by actively stimulating union participation in sectors that see fast consolidation of companies to ensure a healthy *procedural* balance between employers and employees.

All in all, the transition to the container in the Port of Rotterdam's general cargo sector provides insight into how justice and injustice may develop during a transition. The transition to the container came

with a large disruption of the breakbulk regime, however, via large collective efforts by dockworkers and their unions, they were able to retain justices and minimize the creation of new injustices. By the end of the transition, dockworkers saw distributional improvement in terms of wage and less physical work but also had to accept *procedural* injustice in the form of less autonomy. On the basis of the case study, three processes were identified that describe changes in justice and injustice, namely the process of cultural exclusion, process of induced strategy changes by unions and the process of virtuous justice cycles. To explore this process and the conceptual model, the coal mining regime in Germany and Australia are identified as interesting cases for further research. An interesting takeaway from the transition of the container is the power of collective action on the development of justices during a transition, showing all the more how important it is to facilitate a healthy and open environment for discussions to occur.

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9. Appendix

9.1. Codes

Data

Interview

Literature

Notes

Groups

Companies

Breakbulk

Container

Dockworkers

Breakbulk

Container

Overall population

SHB

Sjorder

Government

National government

Regional government

Municipality

Port of Rotterdam

Union

Labor union

SVZ

Justices and injustices

Distribution

CAO

Pensions

Health Hazard

Job availability

Job characteristics

Autonomy

Physicality

Work hours

Permanence

Pressure on performance

Social

Work hours

Wage

Diversity

Lay-offs

Schooling

Upward mobility

Procedural

Autonomy

Bargaining power

CAO

Distance worker-managment

Reliance labor

Reliance union

Solidarity

Pensions

Recognition

Elderly

Foreigners

Pendelaren

SHB

Sjorders

Status dock work

Young

Landscape

Economic growth

Economic downturn

Labor shortage

Oil shock

Other

Political change

Nich development

Container

Qualitative data

Efficiencies

Labor population

Sectorial other
Throughput
Regime
Culture
 Breakbulk
 Prone to strike
 Solidarity
 Container
 Prone to strike
 Solidarity
 SHB
Industry
 Breakbulk
 Container
Markets
 Breakbulk
 Container
 SHB
 Sjorders
Politics
 Liberalization
 Stricter regulation
Science
Technology
 Breakbulk
 Container
Strikes
 1960-1969
 1970-1989
 1970
 1973

 1979
 1981 - 1990
 1990-2010
 1991
 1995-2010

Time

After transition (1990-2010)

Before (1960-1970)

During transition (1970-1989)

9.2. Translation interview quotes

Quote 1 – Researcher 1

En dat betekent dus een bepaalde mate van radicalisering. Uh ja, hogere eisen en sneller geneigd om naar het stakingswapen te grijpen zal ik maar zeggen.

This means an form of radicalization. Higher demands and quicker to organize strikes

Quote 2 – Researcher 2

Dat blijkt uiteindelijk achteraf natuurlijk een achterhoedegevecht te zijn geweest, ging wel om loon, heel erg om geld, maar daar zat natuurlijk die bedreiging van de werkgelegenheid zat achter

In hindsight, it was a rearguard action. It was about wages, very much so about money, but behind that was the threat to wage security.

Quote 3 – Researcher 1

Dat werd een soort bolwerk waar elke keer als een demonstratie was van de havenwerkers, dan gingen ze daarnaartoe. Dus zij waren een soort bolwerk waar iedereen tegen de hoop kon lopen. [..]. Als wij geen cao voor de hele haven meer afsluiten en geen en dus dan moeten de werkgevers afzonderlijk cao's afsluiten. Er is dan niet meer echt een bolwerk waar iedereen tegen te hoop kan lopen.

It (SVZ) became more or less a stronghold where every time there was a strike, dockworkers would move to. [...]. Hence if we (the SVZO would not longer negotiate port-wide CLA's, and instead led employers negotiate individuals CLA's they would not be used as a symbol to direct anger towards.

Quote 4 – Union Leader 1

Toen (voor 1990) waar de oplossing op dat moment wat makkelijker voor handen,

Back then (before 1990), solutions were easier to find

Quote 5 – Union Leader 1

De doorgroeimogelijkheden worden steeds minder. Hé, ja, door die automatisering en de invoeren van robotisering [...] vroeger betekent dat je nog op kantoor kon zitten [...] maar dat is leiding geven ja, sturing geven aan een proces [...] maar dat kan ook niet iedereen worden.

Career development opportunities are increasingly becoming less because of continuous automation and robotisation. [...] back in the day, you could be offered an office job. You still have supervisor functions, but that is a managerial position [...] and something which not everyone can become

9.3. Interview question

Questions are based on analysis of the literature and what was and what was not substantially discussed. Most questions are based on questions raised during the literature analysis or asked for their normative dimension. Questions were divided in topics and (-) denotes a subquestion.

Port wide

Hoe de sector in de jaren hierna veranderd?

- Wat zijn belangrijke processen hierin geweest?
- Wie zijn belangrijke spelers in deze processen geweest?

Strikes

Hoe zou u de stakingen tussen 1960 en 1970 typeren.

- Wat verder in de tijd, van 1970 tot 1980
- En hoe in de huidige tijd?
- Hoe zijn stakingen veranderd in de afgelopen decennia in de haven?
- Hoe zag de vakbonden eruit in de jaren 60, wie waren de belangrijkste vakbonden?

Er wordt gesproken van defensieve en offensieve acties? Wat is het verschil en hoe zit dit eruit in de haven?

Breakbulk regime

Wat is uw rol binnen die team als director breakbulk en hoe lang werkt u al in de haven?

Wie zijn de belangrijkste actoren in deze sector?

- In welke mate zijn dit internationale (geallieerde) bedrijven?
- In welke mate zijn dit gespecialiseerde bedrijven?

In welke mate is er competitie?

Hoe is de relatie tussen het Haventeam en de breakbulk bedrijven?

- is deze relatie veranderd tijdens uw looptijd?

Hoe zou u het kwaliteit van de werkomgeving binnen de breakbulk sector omschrijven?

- Follow-up: hoedanig verschilt dit met 20 jaar geleden?

Wat zijn onderdelen van het werk binnen de breakbulk sector waar havenwerkers tevreden over zijn?

- Follow-up: waar zijn zij niet tevreden over?

Container regime

Hoe zou u de containersector beschrijven tijdens uw start in de haven?

Hoe zou u de rol van de vakbonden in de containersector typeren?

- Follow-up: hoe is deze veranderd in uw loopbaan?

Hoe zou u de rol van de overheid in de containersector typeren?

Hoe is de relatie tussen het Haventeam en de container bedrijven?

- is deze relatie veranderd tijdens uw looptijd?
- verschilt dit per bedrijf?

Internal relations

Gezien de Port of Rotterdam een private organisatie, waarbij de gemeente en de overheid belangrijke aandeelhouders zijn, in welke zin bemoeit de gemeente/overheid zich nog in de haven?

Hoe zou u de relatie tussen werknemers en werkgevers beschrijven vanaf 1990?

- En tussen werknemers en vakbonden?

Hoe is de relatie tussen het haventeam en de overheid?

- is deze relatie veranderd tijdens uw looptijd?
- is er een verschil tussen gemeentelijke en landelijke overheid?

Hoe zou u de onderhandelingspositie van de werknemer in de container sector omschrijven ten opzichte van de werkgever?

- verschilt dit met de breakbulk sector?

Hoe zou u de relatie tussen havenwerkers en kantoor personeel omschrijven?

Labour unions

Hoe is de relatie tussen de Port of Rotterdam en werkgevers?

- In welke mate maken zij (de breakbulk) gebruik van de sjobedrijven?
- Zijn er grote vraagstukken die nu spelen bij de werkgevers?
 - o En welke speelden en zijn nu "opgelost"?

Hoe is de relatie tussen vakbonden en werkgevers?

- speelt de Port of Rotterdam in deze relatie nog een rol?

Waarom denk u dat de FNV de grootste vakbond uiteindelijk is geworden in Rotterdam?

Wat is op dit moment de rol van het FNV haventeam binnen de container sector?

- En binnen de breakbulk sector?

Hoe is de relatie tussen het Haventeam en de breakbulk bedrijven?

- is deze relatie veranderd tijdens uw looptijd?

Hoe is de relatie tussen havenwerkers en management binnen de container sector?

- is deze relatie veranderd tijdens uw looptijd?
- is dit anders dan tussen havenwerkers en breakbulk management?

CLA's

Hoe zou u de arbeidsvoorwaarden en CAO beoordelen in het de container sector?

- Is dit verbeterd of verslechterd ten op zichten van u start in de haven?

Hoe zijn de gemiddelde CAO binnen de breakbulk sector?

- In welke mate hebben bedrijven in de breakbulk een CAO?
- In welke mate is de vakbond hierbij betrokken?
- Zijn deze eerlijk?
- Vergelijking met de container sector?

Wat heft de facturatie betekend voor de positie van de havenarbeider?

Hoe ziet u de huidige pensioen regeling in beiden sectoren?

- hoe staat dit in vergelijking met 20 jaar geleden?

Welke arbeidsvoorwaarde zijn er verbeterd in de afgelopen 20 jaar binnen de container sector?

- en binnen de breakbulk?

Culture

Hoe zou u de cultuur van de havenwerkers binnen de ect beschrijven?

Wat voor veranderingen hebben er plaats gevonden omtrent veiligheid?

- Follow-up: en omtrent kwaliteit werkmateriaal?

Hoe zou u de cultuur van de havenwerker in de breakbulk sector beschrijven?

- Hoe is deze veranderd?

Hoe zou u de cultuur binnen de vroegere container sector beschrijven?

- Follow-up: hoezeer verschilde dit met de cultuur in het stukgoed?

Is de cultuur veranderd in de containersector?

- Follow-up: In welke mate is de cultuur veranderd?
- Follow-up: in welke mate heeft het wervingsproces hier een rol gespeeld?

Hoe zou u de stakingsbereidheid in de container sector beschrijven?

- Follow-up: Is deze in de jaren veranderd?
- Follow-up: wat zijn volgens u de meest belangrijke stakingen geweest voor de sector?

Hoe zou u de cultuur van havenwerkers op dit moment beschrijven?

- is er een verschil tussen breakbulk en container havenwerkers?

Work

In welke mate is het werk in de breakbulk sector nog fysiek zwaar werk?

- Wat is de rol van machines en computers?

Hoe werden buitenlandse havenwerkers behandeld in de haven?

Wordt iedereen gelijk behandeld in de haven?

- Was dat vroeger anders?

Wat was de positie van minderheden (etnisch, seks, nationaliteit) in de containersector?

- Is dit veranderd naarmate de tijd?
- Verschild dit met de breakbulk sector?

Hoe is het werk veranderd in de stukgoed sector?

- Qua veiligheid
- Qua inkomen
- Qua fysieke processen
- Qua autonomie

Hoe zou u de werkomstandigheden bij de container bedrijven beschrijven?

Wat is de rol van de sjorder binnen de ECT?

Hoe zou u de bedrijfvoering binnen de ECT beschrijven ten opzichten van arbeid?

Hoe zou u de kwaliteit van de werkomgeving binnen de container sector omschrijven?

- hoedanig verschilt dit met 20 jaar geleden?

Wat zijn onderdelen van het werk binnen de container sector waar havenwerkers tevreden over zijn?

- waar zijn zij niet tevreden over?

Hoe zou u de huidige verticale mobiliteit binnen de twee sectoren beschrijven?

- is dit naar tevredenheid van de havenwerkers?

8.4 Translations

In that period (around 1979) were around 8.000+ dockworkers. The number of sjorders constituted only a small part, this number stay pretty much the same or even grew due to increased demand for sjorders in the container sector (Interview Smit, p..).