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From Cybersyn to Carnet de Alta: Trials and Objectives of "Digital" Control in Chile

This paper deals with the Corona crisis in Chile, a country that has been shaped by social and political struggles for several months. Existing conflicts have not necessarily changed here due to the outbreak of the crisis, but have intensified. The article focuses on a measure that is also being discussed in Germany: The immunity card called Carnet COVID-19 in Chile was supposed to be introduced in April of 2020. This digital I.D. would have been given to those who have recovered so that they can move and work freely. The introduction of the Carnet COVID-19 was postponed due to the fear of discrimination in the labor market. Former health Minister Jaime Mañalich announced this on May 11. Nevertheless, coming out of a crisis with the help of digital technology is not entirely new in Chile. Cybersyn, a Chilean attempt to control the central government in real-time by a computer during the Salvador Allende government, is sometimes viewed as a "socialist internet" or "socialist origins of big data." The paper aims to discuss under which conditions digitization and technical innovations are helpful, and when they are only a means of control or even discrimination.

The Coronavirus has reached Latin America as one of the last regions in the world. The political and social consequences are devastating. In several countries in Latin America, the number of infections with the Coronavirus and the number of fatalities is increasing significantly. Poverty and social inequality are ongoing problems across the continent. This paper focuses on Chile, a country that has been shaped by social and political struggles for several months. Existing conflicts have not necessarily changed here as a result of the outbreak of the crisis, but have intensified.

The Piñera government reacted quickly after the outbreak of the disease in early March, imposing various measures such as curfews to contain the virus. Due to economic problems, the government wanted to restore normality just as quickly. Actions to open the country again were planned and implemented as early as April with tragic consequences: the number of infections has risen explosively since mid-May.

This article focuses on a measure that is also being discussed in Germany: The immunity card called Carnet COVID-19 in Chile was supposed to be introduced in April of 2020. This digital I.D. would have been given to those who have recovered

so that they can move and work freely. The introduction of the Carnet COVID-19 was postponed due to the fear of discrimination in the labor market. Former health Minister Jaime Mañalich[1] announced this on May 11. The WHO, too, had sharply criticized the planned introduction. Only patients who were hospitalized will receive a so-called Carnet de Alta, which confirms that they have overcome the disease. The government's willingness to use innovations without looking at any data protection and civil rights came surprisingly quickly and rashly.

Nevertheless, coming out of a crisis with the help of digital technology is not entirely new in Chile. Cybersyn, a Chilean attempt to control the central government in real-time by a computer during the Salvador Allende government, is sometimes viewed as a "socialist internet" or "socialist origins of big data" (Morozov 2014). It was a new data processing network, introduced under the leadership of the British cyberneticist Stafford Beer.

As a central economic measure, the Allende government began to expropriate and nationalize factories and mines after 1970. This nationalization attempt created several political and economic difficulties. Salvador Allende himself and members of his government were open to technical progress. In July 1971, the then Chilean Minister of Economy, Fernando Flores, developed the idea of using cybernetics to change the Chilean economy. He asked Stafford Beer for help organizing and managing the Chilean economy according to this new concept. The socialist Beer agreed – he was able to test and further develop his Viable System Model (VSM) approach, established in 1959, under real conditions. Cybersyn was therefore not used to increase profit margins in companies or to provide social entertainment but was intended to support the change from a capitalist economy to the nationalization of mineral resources and municipal property. The British and Chilean actors developed cybernetic models of companies in the nationalized sector and a teletype network that connected the companies to a central computer in Santiago de Chile. The aim was a quick exchange of economic data between the government and companies. The technical equipment available at the time was limited. Cybersyn was not used as a cybernetic system in 1972, but as a communication system when around 50,000 truck drivers blocked the streets of Santiago and endangered the

[1] Mañalich was replaced in June 2020 amidst criticism over his handling of the COVID-19 pandemic. See also Soto (2020).

city's supply. By telex communication, the government was able to coordinate food transportation with just 200 government loyal trucks.

The paper aims to discuss under which conditions digitization and technical innovations can be helpful and when they are only a means of control or even discrimination. It is worth looking at the political and social conditions in Chile 1971 and 2020. Chile is currently experiencing high social inequality, the starting point for the ongoing protests of people. The state health system was destroyed after the overcome Allende's government in 1973 and was only partially rebuilt after the end of the Pinochet dictatorship. The Corona crisis gave employers the freedom to fire workers ad hoc and without any support. Here, the Carnet COVID-19 was, above all, a way of quickly making workers available again. The implementation of Cybersyn had different aims. In both cases, however, we can identify a specific pattern of the government's reaction to the crisis: the rapid attempt to overcome the crisis nationwide through technological progress combined with high-risk tolerance in the short-term implementation of the technology. The paper will discuss Cybersyn and Carnet COVID-19 with a focus on the different motivations of the Allende and Piñera administrations to enforce technological development as well as the social and political conditions of the Chilean society from 1971 to 1973 and 2020.

The paper consists of four parts. First, I will give an overview of the chronology of the Corona crisis in Chile and the different measures introduced by the government. This part of the text will also deal with the social and economic problems in Chile. The second part of the text aims to discuss the planning of the implementation of the Carnet COVID-19 and, finally, its rejection. Third, I will introduce the implementation of project Cybersyn under the Allende administration. As stated above, the fourth part will compare the aims and motivation of the implementation of both projects as well as the different political and social conditions under the different administrations.

1. The Corona Crisis and different measures in Chile

The Coronavirus was confirmed to have reached Chile in March 2020 (Cambero / Garrison / O'Brien 2020a). While initial cases had been imported from South East Asia and Europe, they expanded into a sizeable quantity of untraceable infections, placing the country within phase 4 of the pandemic as defined by the World Health

Organization, and surpassing a thousand confirmed cases on March 25, 2020. In March, a night curfew was implemented throughout the country. Quarantines were established locally in different cities and neighborhoods. President Sebastián Piñera announced a ban on public events with more than 500 people to control the spread of Coronavirus even as massive social demonstrations were planned in March and April (Cambero / Garrison / O'Brien 2020b). On March 18, the government issued a 90-day state of catastrophe, a state of exception subtype regulated in the Constitution of Chile (Gobierno de Chile 2020a; Oasis FM 2020). Initially, the number of fatalities reported was lower than in other countries in the region, even with fewer cases. Already in April, in a *cadena nacional*, President Sebastián Piñera announced a gradual process to adapt to a "new normal," including reopening schools by May 2020 and the return of public workers to the office (Olivares 2020). However, in May 2020, the number of cases and deaths increased rapidly. The whole city of Santiago was put under mandatory quarantine due to an increase of cases, and similar measures were extended to most of the largest cities in Chile. As of August 16, 2020, Chile had the fourth-largest number of cases in South America, after Brazil, Peru, and Colombia, and the ninth-largest in the world. Considering its population, Chile has one of the worst outbreaks in the world, with more than 19,800 cases and 710 deaths per million inhabitants (Gobierno de Chile 2020b). Among other publications, the *New York Times* even reported additional numbers of excess deaths that were not counted. According to the report, Chile stated 8400 excess deaths from March to June, which is 23 percent more than in former years. In the same period, 6133 COVID-19 deaths were counted (Wu et al. 2020). By June 2020, the government confirmed thousands of additional deaths due to COVID-19, including suspected cases where PCR tests were not available. By July 2020, the number of deceased surpassed 10,000 people (Gobierno de Chile, Ministerio de Salud 2020b:3). The impact of the pandemic has been significant in the South American country. In March 2020, when the first cases of COVID-19 appeared, the country was still facing protests and riots that had begun in October 2019, and the pandemic affected the scheduled 2020 Chilean national plebiscite, which was rescheduled. Partial lockdowns and quarantines were established in the first months, hitting the economy of the country. By April 2020, unemployment had reached 9 percent, a record-high level in the past ten years (N.N. 2020), while the economy

had shrunk by 14.1 percent (Carvajal 2020). A new wave politically motivated protests sparked in late May, mainly in Santiago, due to food shortages in specific sectors of the population. The Chilean government had announced a massive stimulus package worth nearly 7 percent of gross domestic product to ease the economic impact of the pandemic. Opposition leaders and social groups have criticized the package as inadequate. The government's proposed measures include beefed-up unemployment checks, deferred tax payments, and government-backed credit lines for small businesses (Ramos / Sherwood / Cooney 2020).

2. The Planning of an Immunity Passport: Carnet COVID-19

Generally, Immunity certificates are a legal document granted by a testing authority following a serology test, demonstrating that the bearer has antibodies making them immune to a disease. These antibodies can either be produced naturally by recovering from the disease or triggered through vaccination. Such certificates are practical only if all of the following conditions can be satisfied: (1) Recovered patients have protective immunity that prevents them from being reinfected (2) The protective immunity is long-lasting, (3) The pathogen mutates sufficiently slowly for immunity to work against most strains, (4) Immunity tests have low false-positive rates (Altmann / Douek / Boyton 2020). The concept has drawn international attention during the COVID-19 pandemic as a possible way to contain the pandemic and permit faster economic recovery (A. Chotani et al. 2020). The most crucial argument of supporters of an immunity passport was that they could be used to exempt holders from quarantine and social distancing restrictions, permitting them to work, including high-risk occupations such as medical care and travel.

An early advocate of immunity passports during the COVID-19 pandemic was Sam Rainsy, the Cambodian opposition leader. In exile and under confinement in Paris, he proposed immunity passports to help restart the economy in a series of articles that he began in March 2020 and published in *The Geopolitics* and *The Brussels Times* (Rainsy 2020a, 2020b).

As of May 2020, it remains unclear if any of these conditions have been met for COVID-19 (A. Chotani et al. 2020). On April 24, 2020, the World Health Organization (WHO) stated that "At this point in the pandemic, there is not enough evidence about the effectiveness of antibody-mediated immunity to guarantee the accuracy of an immunity passport" (World Health Organization 2020b).

Ethical concerns about immunity certificates have been raised by organizations, including Human Rights Watch (HRW). According to HRW, requiring immunity certificates for work or travel could force people into taking tests or risk losing their jobs, create a perverse incentive for people to infect themselves to acquire immunity certificates intentionally, and risk of creating a black market of forged or otherwise falsified immunity certificates (Roth / Sparrow 2020). By restricting social, civic, and economic activities, immunity passports may "compound existing gender, race, ethnicity, and nationality inequities." (Phelan 2020:1596)"

In April and May 2020, governments suggested, including Chile, Germany, Italy, the U.K., and the USA, the use of immunity passports digital or physical documents that certify an individual has been infected and is purportedly immune to SARS-CoV-2. Individuals in possession of an immunity passport could be exempt from physical restrictions and return to work, school, and daily life. According to Alexandra Phelan, immunity passports pose considerable scientific, practical, equitable, and legal challenges (Phelan 2020: 1595).

On April 20, Chile was the first country to issue special COVID-19 immunity cards. The idea is that residents who survived the virus were immune, meaning that they can go help reactivate the economy. The ministry of health already presented the idea of a COVID-19 immunity card on April 9 (Gobierno de Chile, Ministerio de Salud 2020a). On April 16, the minister of Health, Jaime Mañalich, presented the Carnet COVID-19 on television (Mañalich 2020a). He explained that they would only give these cards to those that have tested negative to specific antibodies tests, which some experts argue aren't reliable (Rivera 2020). The minister defended his decision, arguing with a very high probability that those that had the disease are no longer infecting people. The COVID-19 card was planned to be an electronic document that should be sent to those who have recovered from the virus, and that can be presented to authorities via mobile phone.

Citizens who do not own a mobile phone could get physical documents. Authorities would use two different tests to issue the cards. The first was the so-called PCR test, which is used to detect specific genetic material, traces of the virus. The second one was the antibodies test, also known as the "quick test." This one measured the number of antibodies related to the virus (Mañalich 2020a). Generally, this test tends to be less trustworthy than the PCR test, resulting in false negatives, because the antibodies only show up after the virus has been in the body for seven days

(World Health Organization 2020a). According to the minister's plans, people would receive one of these tests 14 days after their last symptom went away, make sure they are immune or not transmitting the disease to others (Mañalich 2020a; Rivera 2020). The point of the card was to reopen the country and strengthen its economy. The Ministry of Health argued that those who already had the disease could be considered as almost immune. Accordingly, they could go to work, helping those who are not immune, and helping to reactivate the economy, an essential goal of the current administration (Mañalich 2020a).

The Carnet COVID-19 was criticized for various reasons. On April 17, Michael J. Ryan and Maria van Kerkhove, from the WHO referred in a public briefing on the immunity passport. Both reported that there was not enough evidence of immunity after surviving COVID-19 disease. Ryan and van Kerkhove also argued the Carnet COVID-19 could bring social problems, namely discrimination at work or the establishment of a black market (World Health Organization 2020a). On April 24, 2020, WHO highlighted current knowledge and technical limitations in a scientific brief published on the website, advising "[t]here is currently no evidence that people who have recovered from COVID-19 and have antibodies are protected from a second infection[…][a]t this point in the pandemic, there is not enough evidence about the effectiveness of antibody-mediated immunity to guarantee the accuracy of an 'immunity passport'" (World Health Organization 2020b). In a follow-up tweet, the WHO clarified that it is expected that infection with SARS-CoV-2 will result in some form of immunity (@WHO 2020a; Phelan 2020:1596).[2] Caution is warranted about how population-level serology studies and individual tests are used. It is not yet established whether the presence of detectable antibodies to SARS-CoV-2 confers immunity to further infection in humans and, if so, what amount of antibody is needed for protection or how long any such immunity lasts (World Health Organization 2020b). Data from sufficiently representative serological studies will be necessary for understanding the proportion of a population that has been infected with SARS-CoV-2. These data might inform decisions to ease physical distancing restrictions at the community level, provided that they are used in combination with other public health approaches (WHO 2020b:2). The use of seroprevalence data to

[2] In his statement from September 1, 2020, Christian Drosten assumes immunity after the disease and recommends a shorter quarantine. See also Hennig (2020).

inform policymaking will depend on the accuracy and reliability of tests, particularly the number of false-positive and false-negative results, and requires further validation (Phelan 2020:1595–1596).

Regarding social and economic problems, there were diverse critical points on Carnet COVID-19. According to Alexandra Phelan, immunity passports would impose an artificial restriction on who can and cannot participate in social, civic, and economic activities. It could even become an incentive for individuals to seek out infection, especially people who are unable to afford a period of workforce exclusion, compounding existing gender, race, ethnicity, and nationality inequities (Phelan 2020: 1596; Wadhera et al. 2020: 2192–2193). Phelan argues, such incentives had to be understood in the context of the pressure governments might face from businesses to adopt policies that return employees to the workforce, with corporate entities being the beneficiaries of the immunocapital of workers (Phelan 2020: 1597). Taking a look at the politics of the Piñera administration in Chile, it becomes clear that the fears are justified. With Ley 21227 from April 1, Piñera announced special measures to protect employers from economic losses, arguing with the protection of workers. Since April 6, it is easier for companies to dismiss their employees without notice or not to pay their wages if they cannot come to work due to the current situation. The employees should then be able to claim unemployment insurance (Gobierno de Chile, Ministerio de Trabajo y Prevención Sociál 2020: Titulo I); short-time work is also possible, with the government subsidizing wages (Gobierno de Chile, Ministerio de Trabajo y Prevención Sociál 2020: Título II).

The Chilean government finally had to postpone the implementation of the Carnet COVID-19. Only those who had to been hospitalized will get a certificate of their hospitalization called Carnet de Alta (Mañalich 2020b).

3. Project Cybersyn

Next, I explore how a technological system that had been constructed in Chile during the 1970s (Project Cybersyn) addressed issues similar to those we currently face. If we move beyond technology and ideology, it is clear that we have already seen efforts to overcome a crisis with the implementation of new technologies in Chile The cybernetic project Cybersyn became a historical case for the early 'inter-

net' communication as a tool to manage the economic crisis in Chile under the Allende administration (Loeber 2018: 6). Salvador Allende had won the Chilean presidency in 1970 with a promise to build a different society. His political program would make Chile a democratic socialist state concerning the country's constitution and individual freedoms, such as freedom of speech and freedom of the press. Giving the state control of Chile's most important industries constituted a central plank in Allende's platform but created management difficulties (Medina 2015: 1007).

A discussion of Project Cybersyn requires a short treatment of Stafford Beer and the so-called viable system model (VSM) that he developed in the 1960s. The VSM is a model of the organizational structure of an autonomous system capable of reproducing itself. Generally, a viable system is defined as any system organized in such a way as to meet the demands of surviving in a changing environment. The VSM expresses a model for a viable system, which is an abstracted cybernetic description that applies to any organization that is a viable system and capable of autonomy (Beer 1972:155). According to Beer's cybernetic model of every viable system, there are five subsystems that are interactively involved in every organism or organization. These are able to maintain their identity independently of other such organisms within what Beer defines as the external environment. This 'set of rules' therefore applies to an organism as well as to a person or an organization. Subsystems 1-3 deal with the 'Inside and Now,' the current conditions of the operation or company. The subsystem1 of any viable system consists of the elements that produce it. These elements, in turn, are viable systems in themselves (Beer 1984: 14–15).

Based on Beer's concept of the VSM, the state can also be viewed as a Viable System Model. According to Beer, the citizens form the System 1 of the state. This hypothesis is limited by the fact that citizens themselves are communities and businesses, cities, and industries that are themselves elements of a state (Beer 1984: 16). According to Beer, System 2 is a module for coordinating the joint activities of System 1, in this case, the citizens of a state. System 2 represents the administrative channels and bodies that enable the primary activities in system 1 to communicate with one another (Leonard 2009: 226–228). System 2 enables System 3 to monitor and coordinate the activities within System 1. System 3 represents the structures and controls that are set up to define the rules, resources, rights, and responsibilities of System 1 and to provide an interface to Systems 4 and 5. System

4 deals with the external environment and future prognoses. The role of System 4 is to observe the expected future environment and its states of adaptability and act to reconcile them (Leonard 2009: 227–228). System 5 is responsible for political decisions within the organization and controls the organization as a whole. The VSM's five-unit was the result of Beer's efforts to create the necessary and sufficient conditions for viability (Beer 1984: 16).

Project Cybersyn itself was an ambitious technological project tied to an ambitious political project. It emerged in the context of Chile's "peaceful road to socialism" (Medina 2015: 1006).

The problem of managing the newly socialized enterprises led a young Chilean engineer named Fernando Flores to contact Beer, the British cybernetician, and ask for advice. Flores worked for the *Corporación de Fomento de la Producción* (CORFO), the government agency charged with the nationalization effort. Together, Beer and Flores formed a team of Chilean and British engineers and developed a plan for a new technological system that would improve the government's ability to coordinate the state-run economy (Medina 2015: 1017). Beer defined the Chilean state as a VSM embedded in the "world of nations." Project Cybersyn picked out the Chilean industry as a VSM. The Minister of Economy was equated with System 5 (Beer 1984:16). In practice, Cybersyn focused on the levels of the product line, the sector, the branch, and CORFO itself. For prototyping purposes, some firms were modeled, and training was piloted for firms to provide meaningful worker information and participation and to differentiate between their roles and knowledge bases and those of the experts (Leonard 2009: 229–231). The system would provide daily access to factory production data and a set of computer-based tools that the government could use to anticipate future economic behavior. Beer envisioned ways to both increase worker participation in the economy and preserve the autonomy of factory managers, even with the expansion of state influence. Beer gave the system the name Cybersyn in recognition of cybernetics, the scientific principles guiding its development, and of synergy, the idea that the whole of the system was more than the sum of its technological parts. The system worked by providing the government with up-to-date information on production activity within the nationalized sector. Factory managers transmitted data on the most important indices of production to the Chilean government on a daily basis. Regarding hardware, the system relied on a national network of telex machines that connected the factories

to the central mainframe computer (Medina 2015: 1017).

Cybersyn became a historical example of the early use of collaborative software or groupware and early "internet" communication: In using the system's telex machines, the government was able to guarantee the transport of food into the city with only about 200 trucks, recouping the shortages caused by 40,000 striking truck drivers who blocked access streets towards Santiago in 1972 (Medina 2011: 142–150).

4. Conclusion

So far, the article has outlined two attempts to overcome a social crisis using digital tools. It is noticeable here that technical progress does not solve the primary problem, but should help to manage the crisis. The aim of this paper is not to compare both tools technically. It is impossible to compare a mobile phone app with a sizeable cybernetic project. Rather, it is about a specific pattern of reactions of various social actors to a radical crisis as well as possible solutions and their profiteers.

First of all, both cases have something in common. Both the Pinera government and that of Allende are open to technical progress and are ready to react quickly and efficiently to the crisis. The speed at which the tools were implemented in Chile, a country that is not one of the economically strongest, is also fascinating. In Chile, the immunity card was discussed much earlier than, for example, in Germany.[3]

The science of cybernetics emerged in the aftermath of the Second World War in diverse countries. Cybernetics moved away from linear understandings of cause and effect and toward investigations of control through circular causality, or feedback. It influenced developments in areas as diverse as cognitive science, air defense, industrial management, and urban planning. The content of cybernetics varied according to geography and historical period. In the USA, early work on cybernetics was often associated with defense; in Britain, it was associated with understanding the brain; in the Soviet Union, cybernetics became a way to make the social sciences more scientific and also contributed to the use of computers in a highly centralized economy. In Chile, stated above, cybernetics led to creating a computer system at

[3] Like his Chilean colleague, German Health Minister Jens Spahn had to withdraw plans for an immunity card in May. In July, the German Ethics Council was also critical in a commissioned report. See also Decker (2020).

an early stage of cybernetic research (Loeber 2018: 3–4).

Both Cybersyn in 1971 and Carnet COVID-19 in 2020 were sharply criticized. Part 2 of the text describes the dangers of discrimination as a consequence of Carnet COVID. Project Cybersyn was often criticized as a totalitarian control system. In Chile, as well as in the United States and Great Britain, it was seen as overly centralized and abusive of the Chilean population (Medina 2006: 601).

Morozov described Cybersyn as "socialist origins of Big Data" (Morozov 2014). The risk of data abuse and technical control is obvious. This risk applies to both Cybersyn and Carnet COVID-19. A more detailed analysis of the political requirements makes Cybersyn appear different. Agreeing with Eden Medina, I suggest that Cybersyn allows us to consider that technical development can be completely different in a political, geographic, and historical context different from that of northern capitalistic states.

With regard to Cybersyn, this can be linked to a strictly democratic objective in terms of data storage and data protection. Beer's team implemented measures to counteract the system's potential for abuse by including mechanisms to protect and preserve factory autonomy and worker's privacy. This protection was engineered into the system's design (Medina 2015: 1007–1008).

Generally, in critical reflection, Beer overstated Cybersyn's ability to promote freedom in Chile and increase worker participation. Obviously, the former Chilean health minister overstated the ability of a digital immunity card to enforce the workflow during the Corona crisis. In summary, the rapid, risky introduction of new technologies cannot be the solution to major social crises. Nevertheless, it makes sense to analyze actors, beneficiaries, and goals of technical innovations in order to determine whether they contribute to solving the crisis or, for the most part, have serious social consequences.

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