

# A Narrative Approach to Corporate Relations: The Historical Background on Telenor's Success

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SVERRE A. CHRISTENSEN

This article examines the development of buyer-supplier relations in the telecom sector. The literature on telecoms in Scandinavia has been dominated by the narrative praising the trusting and collaborative relations between Telia, the Swedish public telephone operator (PTO), and Ericsson, the equipment supplier. The Norwegian PTO, Telenor, diverted from this path and was a pioneer in preferring competitive tenders and arm's length relations with its suppliers starting in the 1970s. The article argues that Telenor's history and nationality had a significant impact on its business strategy. In addition, the article examines why some business narratives persist while others remain unknown. One finding is that shareholder-friendly narratives have a handicap because they focus on self-interest and money, and not societal values.

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**Key Words:** Buyer-supplier-relations; telecom; narratives; liberalisation

## Introduction

The historical literature on the telecom sector has emphasized the close relations between operators and equipment suppliers. This article examines this relationship and draws a new picture of how it worked in a Norwegian context. It builds both on archival records and

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interviews with key actors in the sector, in particular those from Telenor, the former Norwegian public telephone operator (PTO; now a privately listed company). (I note here that at one time both the Norwegian and Swedish PTOs were named Televerket, but the Swedish PTO changed its name to Telia in 1992, and the Norwegian PTO changed its name to Telenor in 1995. For the sake of simplicity, I use Telenor and Telia.) This article aims to expand the view of how the Scandinavian telecom sector developed.

Buyer-supplier relations in broader normative narratives have often been commended as trusting, collaborative, and critical for innovations in the telecom sector. First, a *public innovation narrative* promotes a government's role in corporate innovation and technological development through research funding, development contracts, and public procurement. Second, a *collaborative narrative* claims that buyer-supplier relations should be based on lasting and trusting collaboration. These are often based on particular narratives.<sup>1</sup> A case in point of the second narrative is the Telia-Ericsson relationship between the Swedish PTO and the equipment supplier, respectively. The literature and historical understanding of the Scandinavian telecom sector has been framed and dominated by this narrative.

This article tells a different story; namely, Telenor diverted drastically from this dominant narrative. Post-World War II, Telenor had difficult relations with its equipment suppliers, including high transaction costs. This contributed to Telenor's poor reputation. This was in stark contrast to Telia, which was perceived as one of the best PTOs in the world. The emergent digitalization starting in the 1970s allowed Telenor to pursue its own procurement strategy. It chose arm's length relations with its equipment suppliers by using tenders and strict legal contracts, and by insisting that only price and quality would be criteria for procurement. This was a radical concept, given that buyer-supplier relations in the telecom industry had been both riddled with stakeholder obligations and praised for its valuable externalities, such as innovation, technological development, and employment.

The existing literature does not account for Telenor's successful development over the last several decades to become the largest service provider in the Scandinavian telecom sector. This is a significant gap in the literature, which this article seeks to fill. The main aim of this article is to explain why Telenor chose such a different path than its Scandinavian counterparts; namely, a strict focus on price and quality with its equipment suppliers, and keeping equipment suppliers at arm's length starting in the 1970s.

1. Bruner, "Narrative Construction."

The article also seeks to answer two other questions. First, why is the Telia-Ericsson narrative so prevalent, especially after the new telecom regime made it anachronistic? One finding is that the Telia-Ericsson narrative grew stronger in the 1990s through important contributions from Swedish scholars. This was at the same time that digitalization, liberalization, and globalization transformed the telecom sector, and one effect was that buyer-supplier relations became more market-based.

Second, why has the story of Telenor not been told? It would have been fitting to call Telenor's procurement strategy a counter narrative; however, to be a narrative, the story needs to be told. It is striking that very few historians interested in the Norwegian telecom sector know about this story, but this is also true within Telenor itself. According to Per Hansen, "historical events that are not narrated are not remembered, and therefore, do not 'exist.'"<sup>2</sup> The article seeks to contribute to the discourse on narratives in business history, mainly on why some narratives become prevalent while others are not told at all.<sup>3</sup>

The article is structured as follows. The next section reviews the relevant literature, first on narratives and then on telecoms in Scandinavia, and finally on important differences between Norway and Sweden. The second section shows how Telenor's procurement power diminished in the postwar years due to increasing transaction costs and stakeholder obligations. The third section looks at how the public innovation narrative played out in Norwegian telecom with increased research and development. The fourth section looks at how Telenor's transaction costs decreased starting around 1970, and how the company established links with international suppliers. The fifth section looks at how Telenor was able to exploit its procurement powers by arranging tenders to buy digital switches. The sixth section briefly looks at Telenor's development after 1990. The conclusion returns to the research questions posed in this introduction.

## Literature Review

There has been considerable interest in narratives within many academic disciplines; however, it is only recently that this tendency has

2. Hansen, "Organizational Culture and Organizational Change," 924.

3. Hansen, "Organizational Culture and Organizational Change"; Hansen, "From Finance Capitalism to Financialization"; Hansen, "Business History"; Mordhorst and Schwarzkopf, "Theorising Narrative in Business History"; Popp and Fellman, "Writing Business History"; Thiessen, "Narrative Turn"; Wadhvani et al., "History as Organizing"; Wellum, "Energizing Finance."

reached business history.<sup>4</sup> Narratives are important not only to reduce complexity but also to increase sense making. As such, they share similarities with other concepts, such as culture, discourses, norms, notions, mental frameworks, models, and metaphors.<sup>5</sup> Moreover, the increased interest in narratives has been part of a cultural turn. Hansen says that business historians should move their “focus from whether narratives are true or false to narratives’ origins and effects.”<sup>6</sup> A key motivation for this change has been to tone down reductionism and instrumental rationality in business history. Moreover, narratives accentuate the social and cultural embeddedness of actors, where culture is defined as “a system of values, ideas, and beliefs which constitutes a mental apparatus for grasping reality.”<sup>7</sup>

This article shows that Telenor followed a strategy that was founded on rationality and reductionism; that is, it chose to reduce the complexity in its procurement and buyer-supplier relations to consist of only price and quality of the product. It was a conscious decision to prevent “irrelevant” factors that could limit Telenor’s freedom of choice.<sup>8</sup>

Companies use narratives in marketing, public relations, and “impression management”; they are integral to power games in the sense that “authoritative sensemaking relies on a compelling narrative.”<sup>9</sup> Both Telia and Ericsson have promoted their narrative on their respective websites and it has been repeated in commissioned history books. Narratives are often used to legitimize organizational and strategic changes. There are no signs, however, that Telenor either constructed a narrative to legitimize its strategy toward its equipment suppliers or that one developed naturally. Thus, Telenor’s strategy does not represent a counter narrative. Still, the PTO’s “rational” and reductionist approach did not develop from thin air. As Kenneth Lipartito says, “Culture inheres in all business decisions.”<sup>10</sup> Telenor’s approach may have emanated from or been part of a culture that was “not in the minds of the subjects.”<sup>11</sup> It is an interesting question whether practice theory could have exposed the culture behind Telenor’s strategy, but the sources available for this article do not allow for such an analysis.

4. Hansen, “Business History”; Mordhorst and Schwarzkopf, “Theorising Narrative in Business History.”

5. Alajoutsijärvi, Eriksson, and Tikkanen, “Dominant Metaphors”; Tsoukas, “Analogical Reasoning”; Denzau and North, “Shared Mental Models”; Lipartito, “Culture and the Practice of Business History”; Sejersted, “Rutiner og valg.”

6. Hansen, “Business History,” 700.

7. Lipartito, “Culture and the Practice of Business History”; Lipartito, “Connecting the Cultural and the Material”; Hansen, “Business History.”

8. Cabantous, Gond, and Johnson-Cramer, “Decision Theory.”

9. Schildt, Mantere, and Cornelissen, “Power in Sensemaking Processes.”

10. Lipartito, “Culture and the Practice of Business History.”

11. Lipartito, “Connecting the Cultural and the Material,” 689.

They do, however, show that Telenor implicitly and explicitly rejected numerous times both the public innovation narrative and collaborative narrative (like the one espoused by Telia-Ericsson).

One reason Telenor did not construct a strategic narrative may be that in order to be engaging, narratives should focus on a greater purpose than profits.<sup>12</sup> These can include trust, care, national identity, science, or progress.<sup>13</sup> This suggests that the aesthetic qualities of narratives are important for their continuance. In a comparison of “two discourses, the ‘knowledge-based economy’ and ‘shareholder value,’” Thompson and Harley “demonstrate that, while the [first] gained much more attention, [the latter] discourse had much more significant material outcomes.”<sup>14</sup> This suggests two things, the first being that the prevalence of a narrative does not necessarily translate into impact. The second is that it is more difficult for shareholder-friendly narratives to become dominant. This last point is in line with the fact that most cultural expressions of business, such as in Hollywood movies, are critical toward the shareholder value ideology.<sup>15</sup>

Telenor suffered from a poor public image in the postwar period.<sup>16</sup> The organization was pictured as the incarnation of the inefficient and bureaucratic state institution and was ridiculed by comedians, so much so that its employees were reluctant to reveal their employment in social situations out of embarrassment and fear of harassment.<sup>17</sup> The public debates at the time and scholarly literature on Telenor accord with this opinion.<sup>18</sup> In a comparison of the Nordic PTOs’ procurement policies in 1985, Telenor was ranked lowest in terms of both “commercial orientation (and) technical orientation.”<sup>19</sup> It allegedly “had no vision for the technological development that took place,”<sup>20</sup> and it opposed “impulses and pressures from the industry and R&D establishment.”<sup>21</sup> The reason for Telenor’s alleged weakness, according to the literature, was that it did not engage with or cooperate within the industry. Hence, the literature embraced the public innovation

12. Zak, “Why Your Brain Loves Good Storytelling.”

13. Heller, “Foucault, Discourse,” 667.

14. Thompson and Harley, “Beneath the Radar?”

15. Hansen, “From Finance Capitalism to Financialization.”

16. Espeli, *Det statsdominerte teleregimet*; Rafto, *Telegrafverkets Historie*.

17. Christensen, “Switching Relations.”

18. Haraldsen, *50 år og bare begynnelsen*; Collett and Lossius, *Vision-forskning-virkelighet*; Oland, “Telegrafverket og forskning”; Søgner, “Offentlige innkjøp”; Søgner, “Norway—The State’s Procurement Policy”; Norsk Teknisk Naturvitenskapelig Forskningsråd (hereafter NTNf), “Utvalg for Elektronikk”; Norsk Offentlig utredning (hereafter NOU), “Teleutvalgets utredning.”

19. Granstrand and Sigurdsson, *Technological Innovation and Industrial Development*, 182.

20. Søgner, “Offentlige innkjøp,” 40.

21. Søgner, “Norway—The State’s Procurement Policy.”

narrative and criticized Telenor for not providing sufficient support to the Norwegian industry, as Telia had done in Sweden.

The international telecom literature emphasized relationships between operators and equipment suppliers,<sup>22</sup> yet these relations were also criticized for being cozy market arrangements.<sup>23</sup> The Telia-Ericsson narrative stands out as mainly positive both by international scholars<sup>24</sup> and certainly by Swedish scholars.<sup>25</sup> It was, allegedly, not a cozy relationship because Telia produced a substantial part of its own equipment, and Ericsson did not have a captive market in Sweden. Mats Fridlund has described “the long-term user-producer relation that, since the 1920s, had developed between” Ericsson and Telia.<sup>26</sup> This relationship was strengthened in 1969 at a lunch when Telia’s and Ericsson’s chief executive officers met with Marcus Wallenberg, who was the largest owner in Ericsson. The CEOs wanted to discuss the establishment of a joint venture, Ellemtel, to develop a digital switch. This “lunch story” is told many times to explain Sweden’s leading role in the telecom sector,<sup>27</sup> most recently in a 2015 public report on digitalization from the Swedish government.<sup>28</sup> The Telia-Ericsson narrative is a classic integration of historical genesis and retrospection, with roots that start in the 1920s that explain Ericsson’s success in the 1990s.<sup>29</sup>

The Telia-Ericsson story, which originated with public procurement, is one of many such buyer-supplier relationships in Sweden.<sup>30</sup> Fridlund’s publications in support of the Telia-Ericsson narrative is based on the following. Ellemtel produced a digital switch that allowed Ericsson to sell it on export markets and for Telia “to have one single system for the whole country.”<sup>31</sup> It provided Sweden with one of the

22. Noam, *Telecommunications in Europe*; Chapuis and Joël, *Manual and Electromechanical Switching*; Mansell, *New Telecommunications*; Fransman, *Telecoms in the Internet Age*; Doz, *Government Control*.

23. Dang-Nguyen, “Switch in Time”; Eliassen and Sjøvaag, *European Telecommunications Policies*.

24. Dang-Nguyen, “Switch in Time”; Steinbock, “Globalization of Wireless Value System”; Hauknes and Smith, “Corporate Governance”; Lindmark et al., *Telecom Dynamics*.

25. Granstrand and Sigurdsson, *Technological Innovation and Industrial Development*; Berggren and Laestadius., “Co-development and Composite Clusters”; McKelvey, Texier, and Alm, “Dynamics of the High Tech Industry.”

26. Fridlund, “Switching Relations,” 6.

27. “Bertil Bjurel. Mannen bakom AXE,” December 10, 2004, *Dagens Nyheter*.

28. Statens offentliga utredningar (hereafter SOU), “Om Sverige i framtiden – en antologi om digitaliseringens möjligheter.”

29. Černík and Vicens, “Historical Narrative.”

30. Mats Fridlund’s dissertation discusses the Swedish literature on these relations at length, and is much referenced by other authors. Fridlund, “Den gemensamma utvecklingen”; see also Carlsson, “On and Off the Beaten Path.”

31. Fridlund, “Switching Relations and Trajectories,” 48.

best networks in the world, so the technological partnership benefited both parties and the country. These points were confirmed by other Swedish scholars.<sup>32</sup> Ericsson has also actively promoted the Telia-Ericsson narrative.<sup>33</sup> For example, for Ericsson's centennial anniversary history in 1976, the Telia-Ericsson relationship was given much attention, and the joint venture of Ellemtel was described as "unique in the world."<sup>34</sup> On Telia's website, too, Ellemtel is characterized as "a gigantic success both in Sweden and worldwide."<sup>35</sup>

This narrative was coupled to larger Swedish national narratives of science and progress,<sup>36</sup> and it had other positive dimensions, such as stakeholdership, trust, and cooperation.<sup>37</sup> Lindmark et al. commented that "geographic proximity promotes the repeated interaction and mutual trust needed to sustain collaboration."<sup>38</sup> In doing so, they echo other acclaimed Swedish scholars.<sup>39</sup> Thus, in praising the Telia-Ericsson relationship, the literature became part of the broader public innovation and collaborative narratives.<sup>40</sup> This can be seen in the various post-Fordist and postindustrial narratives or discourses from the 1960s.<sup>41</sup> Some of these narratives gained pace in the late 1970s in reaction to evolving political liberalization.<sup>42</sup> Moreover, some "re-emerged strongly in the early 1990s."<sup>43</sup> The latter is when Fridlund's publications pushed the Telia-Ericsson narrative, which should be considered in relation with the growing prevalence of the systems of innovation approach at the time.<sup>44</sup>

The collaborative narrative advocated a movement away from Oliver Williamson's transaction cost theory—with its emphasis on

32. Lindmark et al., *Telecom Dynamics*; Berggren and Laestadius, "Co-development and Composite Clusters."

33. Mats Fridlund, "Ellemtel develops the AXE system" (<https://www.ericsson.com/en/about-us/history/company/competition-and-cooperation/ellemtel-develops-the-axe-system>).

34. Jacobæus, *Teletekniskt skapande 1876–1976*, 157.

35. John Geary, Johan Martin-Löf, Claes-Göran Sundelius, Bertil Thorngren, "The History of Telia—Compiled for TeliaSonera AB" (<https://thorngren.nu/wp-content/uploads/2014/03/The-History-of-Telia.pdf>).

36. Heller, "Foucault, Discourse"; Fridlund, "Den gemensamma utvecklingen."

37. Fridlund, "Switching Relations and Trajectories," 1.

38. Lindmark et al., *Telecom Dynamics*, 17.

39. Kogut and Zander, "Knowledge of the Firm"; Lundvall et al., "National Systems of Production."

40. Ramsay, "Serendipity and the Realpolitik of Negotiations."

41. Thompson and Harley, "Beneath the Radar?"

42. Eklund, "Adoption of the Innovation System," 43.

43. Thompson and Harley, "Beneath the Radar?"

44. Claisse and Delvenne, "As Above, So Below?"; Eklund, "Adoption of the Innovation System"; Godin, *The Making of Science, Technology and Innovation Policy*.

self-interest, opportunism, arm's length and adversarial relations<sup>45</sup>— and toward long-term relationships based on collaboration, trust, and sharing information.<sup>46</sup> Attempts to pit suppliers against each other in tenders was considered counter-productive, and Villena et al. note that “the literature [...] is unequivocal regarding the value of collaborative buyer-supplier relationships.”<sup>47</sup> Stories of the collaborative narrative are particularly strong in Swedish academia,<sup>48</sup> in research on marketing, international business, and innovation.<sup>49</sup>

The public innovation narrative and collaborative narrative had strong support in Norway as well, which is evident in both the literature on Telenor and on the politicized petroleum industry.<sup>50</sup> Nevertheless, in Norway these narratives never escaped a liberal and economic skepticism.<sup>51</sup> Maybe because the country was more influenced by the school of Adam Smith than was Sweden.<sup>52</sup> Additionally, Oliver Williamson has had a much stronger impact on Norwegian business studies than on Swedish ones.<sup>53</sup> This accords with that the Swedish economy was geared more toward manufacturing and innovation than transactions.<sup>54</sup> Multinationals like Ericsson, ASEA/ABB, Electrolux, Aztra (Zeneca), and Volvo fueled Swedish national pride and confidence.<sup>55</sup> Norway, on the other hand, was marked by its cash flow-oriented businesses, like shipping, and in harvesting its natural

45. Williamson, *Markets and Hierarchies*.

46. Hoyt, “From Arms-Length to Collaborative Relationships”; Phillips and Caldwell, “Value Chain Responsibility”; Holm, Eriksson, and Johanson, “Creating Value”; Kotler, “Speech at the Trustees’ Meeting.”

47. Villena, Revilla, and Choi, “Dark Side of Buyer–Supplier Relationships,” 561.

48. Johanson and Mattsson, “Markets-As-Networks.”

49. Håkansson and Snehota, “No Business Is an Island”; Forsgren, Holm, and Johanson, “The Uppsala School of International Business”; Axelsson and Johanson, “Foreign Market Entry”; Eklund, “Adoption of the Innovation System”; Lundvall, *National Systems of Innovation*.

50. Haraldsen, *50 år og bare begynnelsen*; Collett and Lossius, *Vision-forskning-virkelighet*; Oland, “Telegrafverket og forskning”; Søggen, “Offentlige innkjøp”; Søggen, “Norway—The State’s Procurement Policy”; NTNF, “Utvalg for Elektronikk”; NOU, “Teleutvalgets utredning”; Thue, *Norsk telekommunikasjonshistorie*, 101; Engen, “Norwegian Petroleum Innovation System.”

51. Christensen, “Liberale verdier og statlig eierskap”; Espeli, *Industripolitikk*; Lie, *Norsk økonomisk politikk etter 1905*.

52. Grove, “Mellom ‘non-intervention’”; Munthe, Preben, “Adam Smiths norske ankerfeste,” paper presented at the *Tilbakeblikk på norsk pengehistorie*, Norges Bank, Oslo, 2005; Heckscher, “Survey of Economic Thought in Sweden.”

53. Reve, “The Firm as a Nexus”; Foss and Koch, “Opportunism Organizational Economics”; Foss, “Transaction Cost Economics.”

54. Sejersted, *Age of Social Democracy*, 29; Angell, *Den svenske modellen*; Hanisch and Lange, *Vitenskap for industrien*.

55. Fridlund, “Nationsbyggandets verktyg”; Sejersted, *Age of Social Democracy*; Johan Strang, “Why Do the Nordic Countries React Differently to the COVID-19 Crisis?” (<https://nordics.info/>).



resources.<sup>56</sup> The Norwegian mindset was to exploit comparative advantages for exports and to import technology-intensive products, often from Sweden.<sup>57</sup>

The innovations resulting from public procurement and buyer-supplier relations in Sweden are impressive, as is much of the research on these relations and innovations. Still, it is noteworthy that so few Swedish scholars have addressed this from the perspective of power and interests, not least because most companies that benefited from public procurement was part of the powerful Wallenberg sphere.<sup>58</sup> The Telia-Ericsson relationship, and other collaborative relationships, have been presented as the result of smart design and a rational and functional economy,<sup>59</sup> not of economic interest and power. The national dimension of Sweden's industrial policies became more apparent to Norwegians, as it was a host country to many technology-intensive Swedish multinationals.<sup>60</sup> With this as a background, the article now turns to Telenor's relationship with its equipment supplier in the twentieth century.

### From Procuring Power to High Transaction Costs

The telecom sector was consolidated during the first decades of the twentieth century when European PTOs first monopolized operations of long-distance networks that linked with private networks, which they then eventually absorbed. The arrival of automatic switches further consolidated the industry.<sup>61</sup>

Elektrisk Bureau (EB), a Norwegian manufacturer of telecom equipment, tried to develop an automatic switch, but without success.<sup>62</sup> It

56. Christensen and Rinde, *Nasjonale utlendinger*; Christensen, "Statlig eierskap og nasjonal kontroll"; Christensen, "Globaliseringens fortellinger"; Sejersted, *Age of Social Democracy*; Angell, *Den svenske modellen*.

57. Fagerberg, Verspagen, and Mowery, *Innovation, Path Dependency, and Policy*; Christensen, "Globaliseringens fortellinger."

58. Bo Carlsson is an exception; by pointing to the Wallenbergs, he implies that power and interests each play a part. Carlsson, "On and Off the Beaten Path."

59. Granstrand and Sigurdsson, *Technological Innovation and Industrial Development*; Berggren and Laestadius, "Co-development and Composite Clusters"; Lindmark et al., *Telecom Dynamics*; Fridlund, "Switching Relations and Trajectories."

60. Christensen, "Switching Relations"; Christensen and Rinde, *Nasjonale utlendinger*; Christensen, "Globaliseringens fortellinger"; Tanderø, *Den svenske utfordring*.

61. Mansell, *New Telecommunications*; Fridlund, "Switching Relations and Trajectories"; Christensen, "Switching Relations"; Noam, *Telecommunications in Europe*.

62. Christensen and Rinde, *Nasjonale utlendinger*.

did not receive any support from Telenor or the government, and EB's demands for increasing tariffs were not heeded. Norway's cabinet "rejected [higher tariffs] because these products ought to be 'as cheap as possible' in consideration of 'our nation's communication system.'"<sup>63</sup> Ericsson took over control of EB in 1928.<sup>64</sup>

As the PTOs gained monopolies, they became monopsonists of telecom equipment. When installing automatic switches in Oslo in the 1920s, Telenor exploited its power by pitting suppliers against each other in tenders. It selected a switch made by Western Electric, which established a subsidiary in Norway that later became Standard Telefon og Kabelfabrik (STK), the Norwegian subsidiary of International Telegraph and Telephone (ITT).

ITT/STK and Ericsson/EB signed an agreement in 1934 that divided the Norwegian market between the two companies, which undermined Telenor's ability to arrange tenders.<sup>65</sup> It should be noted that similar agreements appeared throughout Europe before 1940.<sup>66</sup> This was due to rising transaction costs caused by specificity and information asymmetry.<sup>67</sup> There were particularly three interrelated factors that increased the transactional costs and allowed the equipment supplier to make market agreements. *First*, switching equipment lacked common interfaces, so it was difficult and/or expensive for equipment from different suppliers to interact. At least this was claimed by the suppliers, which points to the *second* factor: Telenor lacked sufficient competence in the field and was vulnerable to the suppliers' opportunism. While the first-generation automatic switches were discussed at international conferences, generating knowledge for PTOs, switching "disappeared entirely from international meetings" from 1922 onward.<sup>68</sup> *Third*, PTOs, including Telenor, thus became reliant on suppliers for repair, maintenance, and upgrading of switches. Two additional factors were related to the telecom industry being part of the political economy, or "negotiated environment."<sup>69</sup> When procuring equipment, Telenor was expected to take stakeholder considerations into account and to appreciate externalities seen as positive for society. One factor was the interests of ITT/STK and Ericsson/EB workers, and another factor was to

63. Tolldepartementet, "St. prp. nr. 5," quoted in Espeli, *Det statsdominerte teleregimet*, 195.

64. Christensen, "Switching Relations," 121.

65. "P.M. angående förhandlingar i Lillehammer, 12–15 July 1933," Alcatel STK. Alcatel STK is now part of Nokia Norge AS. The author has copied large parts of the archive, referred to here as STK Historic Archive (hereafter STKHA).

66. Noam, *Telecommunications in Europe*; Dang-Nguyen, "Switch in Time."

67. Williamson, *Markets and Hierarchies*.

68. Chapuis and Joel, *Manual and Electromechanical Switching*, 333–334.

69. Doz, *Government Control*, 67–68; Noam, *Telecommunications in Europe*, 22–23.

support the technological and industrial developments in Norway that were in line with the public innovation narrative. Together, these five factors allowed the industry to have an oligopolistic grip on Telenor.<sup>70</sup>

Telenor's reputation declined in the postwar period when the Labor government did not prioritize telecoms in its allocation of scarce resources; the telephone was instead regarded as "a noble need."<sup>71</sup> The result was queues of people waiting to have a telephone installed in their homes, a problem that haunted Telenor into the 1980s. It was little comfort that Norway shared this problem with other European nations.<sup>72</sup>

Telenor hoped to solve some of its problems by importing modern equipment. It was persuaded to be the first procurer of an electro-mechanical switch in the 1950s, produced by Bell Telephone Manufacturing (BTM), ITT's Belgian subsidiary. The switch was called 8B, and Telenor was enticed by its alleged futuristic high tech features, which indicates Norway's inclination to import technology-intensive products. The purchase backfired when no other PTO bought the switch, making Telenor the only user.

Fixing problems with the 8B, and other switches, required craft-like skills, including tacit knowledge, which were difficult to codify and standardize. STK and EB would often fix issues with some homemade solutions.<sup>73</sup> In an internal Telenor document, the network was referred to as "a true weed flora of equipment variants."<sup>74</sup> These problems increased transaction costs, and Telenor did not know if it was a victim of opportunism by its equipment suppliers.<sup>75</sup>

Telenor's relationship to its suppliers was maybe the worst of all options: an arm's length relationship with high transaction costs and strong stakeholder responsibilities. If a transaction costs analysis had been conducted, it would probably have found that Telenor should have internalized its manufacturing; that is, made its own equipment. It did consider minor production in 1946, inspired by Telia, which allegedly benefited from producing much of its own equipment.<sup>76</sup> However, nothing came out of the considerations. In the 1960s, the

70. Christensen, "Switching Relations."

71. Collett and Lossius, *Vision-forskning- virkelighet*, 19–20; Espeli, *Det statsdominerte teleregimet*, 319.

72. Espeli, *Det statsdominerte teleregimet*; Rafto, *Telegrafverkets Historie*.

73. Interviews with Gunnar Tidemann, Knut Berg, and Jon Stenberg, in Christensen, "Switching Relations," 212.

74. Innst. fra Arbeidsgruppe E - Langtidsplanlegging 20/8-69, long-term-planning-committee (hereafter LTP), Riksarkivet (National Archives of Norway; hereafter RA).

75. Dok LP, August 1976; TA: "Televerkets situasjon og hovedproblemer i dag", September 7–8, 1976, LTP-RA.

76. "P.M. by Jens Bache-Wiig from meeting with minister of industry Lars Evensen," August 8, 1946, and October 2, 1946," STKHA.

Ministry of Industry said it was content to depend on foreign firms in telecom “since we do not have specific advantages” in this field.<sup>77</sup> This affirms the notion that Norway was content to import technology-intensive products.

## The Research Revolution

Telia remained an important reference for Telenor, and it was assessed that the Swedish PTO's costs for equipment was half of what Telenor paid.<sup>78</sup> A Telenor engineer visited Telia in Stockholm for some months in 1958 and came back full of praise, not least because of the research and development (R&D) Telia conducted.<sup>79</sup> During the 1960s, the public innovation narrative gained ground in Europe as nations emulated the American policy of increased public funding for R&D.<sup>80</sup> In this decade in Norway, the government's funding of technical-industrial R&D increased six-fold.<sup>81</sup> The rapid developments in information and communication technologies (ICT) promoted the public innovation narrative.<sup>82</sup> The Norwegian strategy of “research driven industrialisation” in the 1960s was mainly aimed at ICT.<sup>83</sup>

In Norway, the debate about the government's role in innovation was shaped by a harsh critique of Telenor and, in particular, its procurement of radiolink (microwave) equipment from ITT through STK.<sup>84</sup> Meanwhile, the government refused to buy similar equipment from the Norwegian company Nera, because it distrusted the company's capacity to deliver. Nera had developed radiolink with the National Defense Research Establishment for the armed forces. Several people engaged in military communication were critical, bordering on hostile, against Telenor. Bjørn Rørholt, head of the Norwegian Defense Communications Administration, and an influential colonel, was photographed standing on his head, claiming he wanted to see the world from Telenor's point of view.<sup>85</sup>

77. EA/LM Notat, “AB Aulis - konsesjon. . . ., August 4, 1962,” RA-EB.

78. Elgsaas and Tobiesen, “Samfunnsmessig styring av statlig forretningsdrift.”

79. Oland, “Telegrafverket og forskning,” 56.

80. Servan-Schreiber, *American Challenge*; Godin, “Technological Gaps”; Galbraith, *New Industrial State*.

81. Nygaard, “Institutt for atomenergi,” 231; Njølstad, *Strålende forskning*.

82. Christensen, “Switching Relations”; Servan-Schreiber, *American Challenge*; Godin, “Technological Gaps.”

83. Wicken, “Policies for Path Creation.”

84. Christensen, “Switching Relations”; Jensen, “moderniseringsmiljøet”; Njølstad and Wicken, *Kunnskap som våpen*.

85. Oland, “Telegrafverket og forskning,” 33.

The problems with Telenor reached the cabinet, which established the Committee for Electronics to “present propositions [...] to stimulate the development of the electronics industry in Norway.”<sup>86</sup> The committee published a report that was critical of Telenor while lauding Telia for its R&D and its “intimate relation with the domestic industry.”<sup>87</sup> In response, Telenor created a research institute, Televerkets Forskningsinstitutt (TF), in 1967. Even TF’s employees did not hold Telenor in high regard. Ole Petter Håkonsen, who worked at TF before he, ironically, became technical director at Telenor, said that in the 1960s “only jerks would start to work at Telenor.”<sup>88</sup> Moreover, the institute was located quite a distance from Telenor to avoid being entangled in its everyday work. Thus, the institute was kept estranged from Telenor’s internal workings.<sup>89</sup>

One goal of TF was to stimulate Norwegian companies via development contracts. Other goals were to get access to ITT’s and Ericsson’s knowledge pool and to help STK and EB “win the internal competition in the multinational among the subsidiaries. Thus, resources and mandate could be allocated to Norway with possibilities for export.”<sup>90</sup> TF had a fruitful development contract with STK on pulse code modulation (PCM), not least because other ITT subsidiaries were sharing knowledge with TF and Telenor.<sup>91</sup> STK experienced successful industrial development because of a PCM contract and other contracts with the National Defense Research Establishment.<sup>92</sup>

EB also received many contracts from TF, but little came out of them. Telenor thought Ericsson was difficult to work with, as they were reluctant to share knowledge. Moreover, they kept a tight control over EB.<sup>93</sup> For example, Ericsson’s CEO told EB’s managing director that EB’s main task was to supply Telenor with Ericsson’s telecom

86. NTNF, “Utvalg for Elektronikk,” 1.

87. NTNF, “Utvalg for Elektronikk,” 55.

88. Ole Petter Håkonsen, interview in Oland, “Telegrafverket og forskning,” 147.

89. Collett and Lossius, *Vision-forskning- virkelighet*.

90. TF’s *Annual Report 1970*, in Lossius, “MARSAT,” 91. STK supported this reasoning, and sent an article to the Norwegian Ministry of Industry; see Quinn, “Technology Transfer by Multinational Companies.” STK to NTNF and Ministry of Industry, January 4, 1972, Box “Industridepartementet - St 273,” Statsselskapsavdelingens juridiske kontor, Ministry of Industry, RA.

91. Christensen, “Switching Relations.”

92. Collett and Lossius, *Vision-forskning- virkelighet*. The skills and products STK developed formed the basis for the present Norwegian subsidiaries of the French defense company, Thales. See Thales Group, “Norway” (<https://www.thalesgroup.com/en/countries/europe/norway>).

93. Christensen, “Switching Relations”; John Petter Collett, “I skyggen av svensk storkapital? A/S Elektrisk Bureau innenfor LME-konsernet,” conference paper presented at Nordiskt forskarsymposium Ljuster, June 2–5, 1986.

equipment, and its “second large task—but *after* its main task—was to develop its *own* products.”<sup>94</sup> Nera and other Norwegian companies received more support and development contracts from TF and other government bodies, but still not much happened.<sup>95</sup> In 1976 the government requested that EB take over Nera to rescue the company, as part of this operation, Ericsson agreed to reduce its ownership in EB so Norwegians would hold the majority of EB’s shares. The Wallenbergs hoped this would improve EB’s standing in Norway. It should be noted that these operations were managed by the Ministry of Industry, and that Telenor was not involved.<sup>96</sup>

The Nordic Mobile Telephone (NMT) system was the most important outcome of the Norwegian R&D efforts within ICT in the 1970s, and it was a result of cooperation among Nordic PTOs starting in 1969.<sup>97</sup> NMT was a platform for the next generation of system—namely, the Global System for Mobile Communications (GSM)—which was developed in the 1980s and 1990s, and in this Telenor played a leading role. This article does not question the significance of the Nordic PTOs on creating NMT and GSM, or in forwarding Nokia’s, Ericsson’s, and Telenor’s successes. This is a discussion beyond the scope of this article and is covered in other publications. As McKelvey et al. write, “The history of mobile telecommunication in Sweden is to a large extent the history of the firm Ericsson and its relationship to the Swedish PTTs.”<sup>98</sup> However, given the great public effort, there was very little industrial development in the Norwegian telecom industry,<sup>99</sup> and especially with mobile telephony. A senior researcher from Telenor said that this lack of development was the “the largest disappointment that has been seen in the history of Telenor R&D.”<sup>100</sup> For Telenor, the public innovation narrative lost much of its pull, which allowed it to modernize its network in the 1970s.

## From High Transaction Costs to Procuring Power

Telenor’s transaction costs fell in the 1970s, one reason being its increased knowledge. The PTO improved its planning and control for

94. Bjørn Lundvall, LME, to Eilif Bjørnstad, EB, November 2, 1970, File “273190 - Korrespondanse med LME ? styret 1958–73” (hereafter EB), Norsk Telemuseum (hereafter NTM).

95. Fagerberg et al., *Innovation, Path Dependency, and Policy*; Haraldsen, *50 år og bare begynnelsen*.

96. Christensen, “Switching Relations”; Paulsen, *Samarbeidets*.

97. Thue, *Norsk telekommunikasjonshistorie*.

98. McKelvey, Texier, and Alm, “Dynamics of of the High Tech Industry”; Hauknes and Smith, “Corporate Governance.”

99. Haraldsen, *50 år og bare begynnelsen*.

100. Rækken, “Norwegian GSM Industrialisation.”

the whole network in relation to the growth in long-distance and international calls, and it completed automation of its network. The system required specifications for signaling, billing, transmission, and directing, which in turn required cooperation with international bodies.<sup>101</sup> These bodies became important sources of further information and knowledge. After being absent for decades, switching reappeared in international forums in the 1960s.<sup>102</sup> There were also fruitful interactions between research and internationalization.<sup>103</sup> TF was important in these activities, although its role in switching is disputed, as its approach was considered too theoretical and its relationship with Telenor's switching department was strained.<sup>104</sup> Additionally, starting in the 1960s, larger numbers of students were graduating with degrees in electronics and computing, which provided Telenor with more and better candidates.<sup>105</sup>

Unfortunate developments at STK were also critical to the changing buyer-supplier relations. The above mentioned 8B switch created problems for Telenor, which STK struggled to fix.<sup>106</sup> Moreover, in the late 1960s, ITT convinced STK to take over a project with a rural switch. STK was enthusiastic about this work and invited Telenor to take an active part in "one of the largest development projects in telecommunication in the country."<sup>107</sup> Telenor welcomed this opportunity, but was not carried away; it wanted a product, not a project.<sup>108</sup> Ultimately, the rural switch project was a disaster for STK because of delays and increased costs;<sup>109</sup> and as with 8B, Telenor was the only user. Even though the rural switch was far more expensive than other alternatives, Telenor bought a considerable number of them. STK was hit hard by other problems, but Telenor needed STK for repair and maintenance of the switches.<sup>110</sup>

The Norwegian Auditor General had more impact in the late 1960s, and the office took particular interest in Telenor's procuring

101. Lindmark et al., *Telecom Dynamics*.

102. Chapis and Joel, *Manual and Electromechanical Switching*, 190.

103. Godø, "Innovation Regimes."

104. Christensen, "Switching Relations," 144.

105. Hanisch and Lange, *Vitenskap for industrien*, 165–166.

106. Mo, *Historien om 8B* (in author's possession); Christensen, "Switching Relations."

107. Letter from Jon B. Riisnæs, STK, to Teledirektoratet, December 17, 1970, and letter from STK to Teledir, October 20, 1971, Box 7, File "11B 1969-79, Fremdrift Forsinkelser," NTM.

108. Letters from STK to Teledirektoratet, December 17, 1970, and October 20, 1971, Box 7, File "11B 1969-79, Fremdrift Forsinkelser," NTM.

109. Christensen, "Switching Relations"; Mo, *Historien om 11B* (in author's possession).

110. "Teknisk direktør, ta 74/Nj, 20/6-74," Box 7, File "11B priser og nedtrapping," NTM.

methods.<sup>111</sup> Starting in the early 1970s, it ordered Telenor to use tenders when possible. In areas where interfaces impeded tenders, it required the PTO to use cost contracts and to inspect suppliers' books. Equipment suppliers, of course, tried to avoid these inspections. They showed that STK's price for the 8B was high, but fair, and accurately reflected STK's costs. EB, however, was severely criticized for setting the price "much higher than costs and a reasonable profit implied," and it was ordered to lower the price of the switch by 40 percent.<sup>112</sup> EB's and Ericsson's standing was harmed when this opportunistic behavior was exposed. Meanwhile, STK's reputation suffered from its inferior and expensive products. Both of these events furthered Telenor's distrust of the Norwegian subsidiaries.

Telenor concluded that it needed to be much tougher on its suppliers. It also needed to invest in future technology, including computerized switches, also known as Stored Program Control (SPC) switches, with "an urgent need" to acquire "better competence and insight in [these] switches."<sup>113</sup> Telenor sent engineers to Ericsson in Stockholm and BTM in Antwerp to study SPC switches. The computerized switches did not have the same trouble with interfaces, so Telenor requested that STK and EB submit offers for two tenders in 1971.<sup>114</sup> The equipment suppliers were informed that Telenor would disregard the market agreement from 1934 and consider only price and quality. The agreement was actually broken when EB/Ericsson won a contract in Oslo, STK's home market. The head of STK's telecom business was furious with Telenor, arguing in a meeting that the contract was a result of Telenor's incompetence.<sup>115</sup> He tried to reinstate the company's oligopolistic control by claiming that Telenor neglected its stakeholder responsibilities toward STK's workers.

Still, BTM and STK won a contract for a local SPC switch in Oslo, and BTM invited Telenor to send personnel to Antwerp. Several Telenor engineers worked at BTM in the mid-1970s, with some staying as long as eighteen months. A key task was to program relevant features of the Oslo network into the SPC switch's software, forcing Telenor to systematize and register all general and specific traits and features of

111. Espeli and Nilsen, *Riksrevisjonens Historie*.

112. "TA 12/3-76, Nj., Bestilling av automatstyr etter langtidavtalen 1975–77," Box 7, File "11B priser og nedtrapping," NTM; Mo, *Historien om 11B*; Riksrevisjonen to Teledirektoratet, October 25, 1976, Bjørn Gladsø, personal archive.

113. Fa - Konsernedelse og teknisk direktør, June 9, 1970, RA-TBDM, National Archives of Norway.

114. Fa - Konsernedelse og teknisk direktør, Decision at Telenor's Board Meeting, January 25, 1971, RA-TBDM, National Archives of Norway.

115. Memo from Ernst Berentsen, "Oslo Fjern- og utenlandssentral FS 3," April 17, 1974, File STK's tilbud for fjernsentral i Oslo (1971–72), Box 9, NTM.



the network. The specifications for signaling, billing, transmission, and directing had to be worked out for the local networks' mechanical switches, and handwritten schemes had to be programmed into the SPC switches.<sup>116</sup>

Buyer-supplier relations are often presented as either having a pure market or an interactive approach.<sup>117</sup> This is too simplistic, because many relations entail interaction. Thus, the question is the nature of those interactive relations. Is it mainly collaborative and trusting, or mainly arm's length and framed by formalized contracts? Telenor's relationship with BTM was the latter. The involved parties praised the good working relations, but BTM felt Telenor's contracts were very demanding, including both strict specifications and time limits. One BTM employee said this "was unheard of in the business in the 1970s." This action made Telenor a frontrunner in this style of business. According to another BTM interviewee, Telenor was becoming the most professional and demanding PTO in Europe.<sup>118</sup> BTM was very pleased with its relations with Telenor; an important factor was probably that it did not have to pay any fines for delays. STK was Telenor's contractual partner, and thus it had to paid all the fines to Telenor related to delays on the SPC project.<sup>119</sup>

Telenor demanded all features for the SPC switches, including automatic redirection, wake-up calls, and speed dialing.<sup>120</sup> This required additional programming and increased memory on the computer of the SPC switches. BTM was more than happy to further develop its SPC switches with the Norwegian PTO. At the same time, in the mid-1970s, Telenor was struggling with its bad public image. The network in Oslo occasionally broke down because of old equipment. The Norwegian public, living with these problems, had no idea that Telenor was considered a "professional and demanding PTO." The same goes for key people in STK, EB, and TF; they either did not know of or appreciate Telenor's new gained knowledge.<sup>121</sup> Telenor realized that no matter how much effort was put into these old switches, they would never work well.<sup>122</sup> It would only be wasting money, and thus it would be

116. Interview with Alf Ivar Nilsen, in Christensen, "Switching Relations," 170.

117. David Ford, Lars-Erik Gadde, Håkan Håkansson, Ivan Snehota, and Alexandra Waluszewski, "Analysing Business Interaction," paper presented at the 24th IMP Conference, Uppsala, 2008.

118. Interviews with Hugo Wuyts, Ludo Pignet, Toon Govers, and Rudy Scholliers, in Christensen, "Switching Relations." All four held leading positions in BTM's switching business and worked with SPC and digital switches in Norway.

119. File "N4 og C7 10CLL tilbud kontrakt m.m.," Box 8, NTM.

120. Interview with Nils Kåre Myklebust, in Christensen, "Switching Relations."

121. Interviews with people from STK, EB, and TF confirm this, in Christensen, "Switching Relations."

122. Christensen, "Switching Relations," 213.

better to allocate resources and efforts on future equipment and new relationships.

## Digitalization and Liberalization

While installing the SPC switches, Telenor was also developing a strategy on digital switches: how and when to procure and install them. Companies like Ericsson and ITT, as well as newcomers like Nokia and Alcatel, were developing their own digital switches.<sup>123</sup> Telenor considered a Norwegian digital switch, but “the Norwegian market [was considered] too small,” and the PTO had “few good experiences with maintenance and upgrading of special Norwegian types.”<sup>124</sup> In 1990, Telenor’s director of communications claimed publicly that the development costs of digital switches were so high that “no one in their right mind” could mean that Norway should try to do this.<sup>125</sup>

Digital switches could be programmed to interact with other switches, meaning idiosyncratic interfaces were no longer obstacles in arranging tenders. This provided the PTOs with power, which some used to make demands toward the equipment suppliers. When the Australian PTO procured a digital switch from Ericsson, it demanded R&D activity from the Australian subsidiary of the Swedish multinational.<sup>126</sup> French authorities nationalized the French subsidiaries of ITT and Ericsson.<sup>127</sup> Telenor invited STK and EB to a series of meetings in 1980 and 1981 on the pretext that it was a “now or never” chance to change the Norwegian telecom industry.<sup>128</sup> Telenor proposed a merger between STK and EB: a united company could have licensing agreements with Ericsson and/or ITT. The initiative came from Telenor’s top management, but there is little reason to believe that Telenor’s technical or switching departments supported the initiative. Nevertheless, Telenor asked the subsidiaries to come up with ideas for future business opportunities, but STK and EB refused.<sup>129</sup> Telenor realized the

123. In 1978, Nokia’s CEO said that developing a digital switch was a “question of whether Nokia wanted to be in the telecommunication business in the long run.” Häikiö, *Nokia*, 58.

124. TA 20/2-76 Nj: “Anskaffelse av automatutstyr - alternative strategier,” March 23–24, 1976, LTP-RA; “Sak 4 Framtidig automatteknikk. Sluttrapport fra LP-Styringsgruppe III,” March 15–16, 1977, LTP-RA.

125. Dag Melgaard, “Televerket og norsk elektro,” *Aftenposten*, July 16, 1990.

126. Fridlund, “Switching Relations and Trajectories”; Bartlett and Ghoshal, “Tap Your Subsidiaries.”

127. Christensen, “Switching Relations.”

128. EB’s minute from meeting with Televerket and STK, Box 5, January 22, 1981, NTM.

129. “Avd. T’s kommentarer til EB’s og STK’s utredning. . . .,” TA April 23, 1981 Bld -, Box 5, NTM.

subsidiaries were more loyal to their mother companies than to the Norwegian stakeholders.<sup>130</sup> As a consequence, Telenor felt relieved of any stakeholder obligation. For Telenor, digitalization led to liberalization.

It is worth remembering that Telenor still struggled with a bad public image, and few had confidence it would manage the transition to digital technology. This concern prompted the establishment of the National Telecommission in 1981. The head of TF was a prominent member of this commission, but he stated that he only represented himself, not Telenor, and, this was understood as he shared the general negative impression of Telenor. Another illuminating story is that a Telenor employee fell off his bike on the way to the commission's first meeting. He looked bloody and beaten up. When he arrived, he said, "You all understand where I come from!" suggesting that he had been beaten up by angry telephone subscribers.<sup>131</sup> Nevertheless, and despite general skepticism, Telenor's board and management had confidence in the PTO's switching department.

Telenor arranged a tender in 1982 to install digital switches for half of the Norwegian network, which was considered the "contract of the century." Other international suppliers were invited to participate, in addition to STK and EB. STK presumed that EB would win because of its increased Norwegian ownership, so STK asked Telenor to consider its stakeholder responsibilities and thus buy from both STK and EB. Telenor rejected such responsibilities, and it made it clear to STK, the public, and all the involved parties that it would consider only price and quality in the offer.<sup>132</sup> Liberal politicians and business magazines welcomed that STK and EB had to compete. They were characterized "as two laidback 'fat cats' who had lain beside each other and produced some of the most expensive tele-products in the world."<sup>133</sup> Telenor did not indulge in such attacks either publicly or privately, but only talked about price, quality, and how the selected switches would improve the network and thus services to their customers.

BTM convinced ITT to use Telenor as a showcase for its digital switch, as "all the other PTOs looked to Norway."<sup>134</sup> STK was told to

130. Abrahamsen to Lied, April 14, 1981, Box 5, NTM.

131. Sjuve, "Bredbåndshistorien bit for bit," 80.

132. "Innføring av digitale DMS-sentraler" for TBD, Dok 159/81, October 7, 1981, Box 5, NTM.

133. "Standard Telefon og Kabel: Prisgitt Televerket," *Kapital*, no. 20, 1985. A conservative MP said it was as if STK and EB "had become a part of Televerket," St. f. 1982-83, p. 3975, in Sjuve, "Bredbåndshistorien bit for bit," 87.

134. Interview with Toon Govers and Rudy Scholliers, in Christensen, "Switching Relations," 241.

dump the price and was promised that ITT would cover any losses. The STK price offer was allegedly 40 percent lower than EB's offer, and that was the deciding factor for Telenor to choose ITT's/STK's switch in 1983. The loss came as a shock to both Ericsson and EB.<sup>135</sup> There was some *schadenfreude* in Telenor that the "Big Swede" lost, yet the sources are clear that only price and quality mattered in the decision making. There was a sense of pride at Telenor that the company had become a demanding procurer. Telenor employees reveled in solving problems and working out specifications.

The installation of the first ITT/STK switches was delayed due to difficulties with programming. This again fueled the public's opinion that Telenor was not capable. The negative evaluation Telenor received in 1985 in the Nordic comparison—that it "had no vision for the technological development that took place"—was reflective of the general attitude at the time.<sup>136</sup> Nevertheless, despite initial delays, the installation was a success for Telenor and ITT. It allowed ITT to divest its telecom business to Alcatel.<sup>137</sup> ITT's switch and Telenor's solutions were showcased internationally. Delegations came from South Korea, Australia, the Netherlands, Spain, China, Italy, Belgium, and Switzerland, and some of these countries "bought Telenor's specifications."<sup>138</sup> Telenor was satisfied with the switch and the cooperative relationship with BTM, but it was disappointed with STK's contribution.<sup>139</sup> It proved to be a Pyrrhic victory for STK, which incurred heavy financial losses from the delays and resulting fines, and then ITT did not stand by its promise to cover STK's losses.<sup>140</sup> STK hoped it would regain some of these losses when the digital switches were installed across the rest of the network.

Telenor issued a second tender in 1990 to complete the digitalization of the network. STK promised more production in Norway if it won the contract, but Telenor was not interested in such aspects. It was eager, however, to convince Ericsson that it was open to operating two systems, and that, again, only price and quality would count in decision making. Ericsson dumped the price, as it felt compelled to win in Norway. Telenor concluded "that Ericsson had defined a totally new

135. Meurling and Jeans, *Ericsson Chronicle*, 314.

136. Søgne, "Offentlege innkjøp," 40.

137. Christensen, "Switching Relations."

138. E-mail from Ole Petter Håkonsen to the author, April 2, 2019.

139. Innstilling om valg av leverandør for utstyr til 90-årenes telenett, Bjørn Gladsø personal archive.

140. Van Dyck to Thoresen, January 19, 1983, Christopher Harper Archive, Nokia Norge AS.

price level with the offer.”<sup>141</sup> Word was that Telenor paid half of what Telia did for the same equipment.<sup>142</sup> Telenor wanted two systems, as this laid the foundation “for a real competition also at the next tender round.”<sup>143</sup> Telenor even added an extra monopoly tariff on STK’s prices because it was certain that STK would exploit an eventual monopoly in the future.<sup>144</sup>

The two tenders provided Telenor with a top quality network at a very good price, yet Telenor never created a narrative about its success. This is most likely why so few people know of this process. A telling example is when the Norwegian Minister of Communication said in 2002: “It may sound weird today, but the National Telecommission actually found it pertinent to recommend [Telenor] a strategy for replacing outdated equipment and implement new technology, as if that was not a matter of course.”<sup>145</sup> This was very far from the truth.

### Digitalization, Liberalization, and Globalization

Mats Fridlund presented his work on the Telia-Ericsson relation at a seminar in 1996. Ole Petter Håkonsen, who was Telenor’s technical director at the time and a key figure in Telenor’s digitalization strategy in the 1980s, was present, and commented on Fridlund’s talk. Håkonsen explained that he was relieved that Telenor was not caught up in a similar relation like Telia-Ericsson.<sup>146</sup> He maintains that Telenor wanted equipment “according to [our] open, international specification and interfaces, at competitive prices.” Moreover, he says that Telenor “would at any cost avoid being dependent on one supplier [ . . . ] which would limit our freedom to choose in the future.”<sup>147</sup> This was contrary to the normative message of the Telia-Ericsson collaborative narrative.

Håkonsen said the digital switch’s success allowed the PTO to feel confident, which was new for Telenor. Their installation provided

141. Telenor arkiv: Innstilling om valg av leverandør for utstyr til 90-årenes telenett, side 4, Bjørn Gladsø personal archive.

142. Interview with Bjørn Gladsø, in Christensen, “Switching Relations,” 283.

143. Telenor arkiv: Innstilling om valg av leverandør for utstyr til 90-årenes telenett, side 4, Bjørn Gladsø personal archive.

144. Interview with Kjell Christensen, in Christensen, “Switching Relations,” 282; Televerket’s board meeting, July 3, 1990, Teledirektoratet (Televerket), RA.

145. Skogsholm, “Telekom – katalysator for norsk vekst” ([https://www.regjeringen.no/no/dokumentarkiv/Regjeringen-Bondevik-II/sd/Taler-og-artikler-arkivert-individuelt/2002/telekom\\_-katalysator\\_for\\_norsk/id265813/](https://www.regjeringen.no/no/dokumentarkiv/Regjeringen-Bondevik-II/sd/Taler-og-artikler-arkivert-individuelt/2002/telekom_-katalysator_for_norsk/id265813/)).

146. Lars Thue arranged the seminar at the Norwegian School of Management, which took place on March 8, 1996, and Håkonsen told the story.

147. E-mail from Ole Petter Håkonsen to the author, April 2, 2019.

Norway with “one of the most modern and digitized (networks) in Europe.”<sup>148</sup> In the 1990s, Telenor was eager to talk about the enormous savings and improvements the network provided. It boasted that Norwegians had among the lowest prices for telecom services in Europe.<sup>149</sup> The general opinion of Telenor rose in the general public.<sup>150</sup> If anything, Telenor might have had too much confidence. “We were so satisfied with ourselves,” one employee said, “that the only thing we lacked was the Lord’s official blessing.”<sup>151</sup>

The contrast to the Swedish story is marked. Lindmark and colleagues said that in the new telecom regime, the “locus of influence changed from operators to suppliers.”<sup>152</sup> In Norway, it was the opposite. STK and EB more or less fell apart as companies in the 1990s, and other Norwegian IT companies shut down. This benefited Telenor because it could cherry-pick the best employees from these companies.

In 1990, Telenor had about 2.2 million subscribers on fixed lines in Norway.<sup>153</sup> These numbers expanded through foreign direct investment in Eastern Europe in the 1990s, so that by 2000 it had 15 million customers.<sup>154</sup> The main ownership advantages were superior knowledge of the GSM system and an ability to roll out mobile networks efficiently.<sup>155</sup> The foreign direct investments were financed by revenues from the Norwegian network, which accounted for the bulk of Telenor’s revenues in the 1990s.<sup>156</sup> This, again, was possible because of the high quality and low price Telenor attained through its tenders in 1982 and 1990.

European PTOs were key actors in the public innovation narrative in conducting and financing R&D. Martin Fransman notes that in the new telecom regime, a “new breed of operators emerged, flexible and with little or no R&D since technology could be readily supplied by the manufacturers.”<sup>157</sup> To compete with the new entrants, the former PTOs scaled down their research, as had Telenor.<sup>158</sup> Moreover, as the equipment became standardized off-the-shelf products, technology and equipment became necessary but not sufficient conditions for a

148. Thue, *Norsk telekommunikasjonshistorie*, 101.

149. Ole Petter Håkonsen, “Utdrag fra fortellingen om digitalisering av hovednettet,” private manuscript in author’s possession; Thue, *Norsk telekommunikasjonshistorie*.

150. “Televerket roses for god service,” *NTB*, March 4, 1991.

151. Aarvik, *Makt og avmakt*, 130.

152. Lindmark et al., *Telecom Dynamics*, 69.

153. Statistics Norway, “Norwegian Telecom, Telephone and Radio Services in Norway,” (<https://www.ssb.no/a/histstat/tabeller/20-20-44.txt>).

154. “Fra lokalt monopol til global mobilitet,” *Paraplyen*, November 2, 2009.

155. Interview with Bjørn Gladsø, in Christensen, “Switching Relations.”

156. Thue, *Norsk telekommunikasjonshistorie*.

157. Lindmark et al., *Telecom Dynamics*, 96.

158. Fransman, *Telecoms in the Internet*, 48.

company to succeed.<sup>159</sup> Jon Fredrik Baksaas, Telenor's former CEO (2002–2015), said in a public lecture in 2015 that “the technology advantage in telecommunications hardly exists. Mobile operators are using more or less the same equipment all over the world.”<sup>160</sup> The former technology director in Telenor, Berit Svendsen, said in an interview, “Telenor should not do basic research.”<sup>161</sup> What was needed was knowledge on how to build a network and how to increase its capacity. “The most important thing is to be able to use others' ideas and commercialize them successfully.”<sup>162</sup> Thus, Telenor focused more on marketing and services while Telia was rooted in the physical network.<sup>163</sup> The difference between Telia and Telenor became apparent in 1999.

Telenor and Telia merged in 1999, but it was cancelled almost immediately when the parties failed to agree on the location of the headquarters for mobile telephony. Given that it was the company's best interests that should determine the location, most Swedes presumed that meant Stockholm, which was home to Kista, a global center for telecom and mobile telephony. The Telia-Ericsson narrative was again activated and applauded in the media.<sup>164</sup> However, Håkonsen and other Norwegians did not want the merged company to have a special relationship with Ericsson, as they thought this had impeded Telia's development.<sup>165</sup> Swedish commentators mocked this argument as an expression of Norwegian nationalism and feelings of inferiority.<sup>166</sup> There were rumors that Ericsson simply would not accept headquarters in Norway.<sup>167</sup> The low point occurred when the Swedish Ministry of Industry said that Norwegians “are so incredibly nationalistic.”<sup>168</sup>

Telia was believed to be almost twice as valuable as Telenor in 1999. In the Telenor/Telia merger agreement, the ownership split was 60/40 in Telia's favor, and Telenor was considered lucky to get that ratio.<sup>169</sup>

159. Baksaas, “Here, there and everywhere: Empowering the many, not just the few,” Lehmkuhl lecture, Bergen, 2015 (<https://openaccess.nhh.no/nhh-xmlui/handle/11250/2390785>).

160. Baksaas, “Here, there and everywhere.”

161. “Ikke vår jobb å drive grunnforskning,” *Teknisk Ukeblad*, October, 26, 2011.

162. “Ikke vår jobb å drive grunnforskning,” *Teknisk Ukeblad*.

163. Baksaas, *Min historie om Telenor*.

164. “Dragkampen i fusjonerte Telenor-Telia fortsetter,” *Aftenposten*, October 20, 1999; Baksaas, *Min historie om Telenor*; “Telianor - Telenor-lederne krever holdningsendring,” *Reuter - nyheter på norsk*, December 13, 1999; “Ericsson akseptere ikke Norge” (<https://itavisen.no/1999/12/07/ericsson-aksepterer-ikke-norge/>).

165. “Ole Håkonsen ble ryddegutt,” *Computerworld*, July 4, 1999.

166. “Dumhetens triumf,” *Veckans Affärer*, April 26, 1999.

167. “Ericsson akseptere ikke Norge.”

168. “Fakta om fusjonsprosessen mellom Telenor og Telia,” *VG*, February 25, 2003.

169. Fang, Fridh, and Schultzberg, “Why Did the Telia-Telenor Merger Fail?”; Schmid and Daniel, “Telia - a Swedish-Finnish Marriage.”

Table 1 Key financial figures for Telenor and Telia, 2019

	Telenor (NOK billion)	Telia (SEK billion)
Revenue	113.7	73.455
Operating income	25.7	12.3
Net income	11.2	7.6

Source: Based on Telenor, *Telenor Annual Report 2019*; <https://www.telenor.com/investors/annual-report-2019/>; Telia, *Telia's Annual Report 2019*, <https://www.teliacompany.com/globalassets/telia-company/documents/reports/2019/telia-company-annual-and-sustainability-report-2019.pdf>

Table 2 Largest telecom companies in Scandinavia, billions NOK

	Market Value	Enterprise Value
Ericsson	288.2	245.0
Nokia	105.4	185.5
Telenor	214.3	336.2
Telia	138.1	
Elisa	99.4	
Tele2	88.6	

Note: Enterprise value is market capitalization plus debt. The debt to enterprise value is derived from annual reports. Market value is from May 7, 2020.

Source: Computations from an analyst at DnB ASA (using [Bloomberg.com](https://www.bloomberg.com)); e-mail to author, May 7, 2020, in author's possession.

Telia became even more valuable after it merged with the Finnish operator Sonera in 2002. Now, however, Telenor has a larger business operations (Table 1), and Telia is worth only two-thirds of Telenor (Table 2). In 2019, an analyst estimated that Telia's shares had increased by 24 percent, adjusted for dividends, over the preceding twenty years. During the same time period, Telenor's shares increased by over 850 percent.<sup>170</sup> An important reason is that Telenor was a shrewd dealmaker, making a profit of NOK 21 billion in 2001 by exercising two put-options: Telenor sold its shares in the German Viag Interkom and in the Irish East Digifone, to British Telecom, at a prearranged price after the dot-com had burst.<sup>171</sup> The most important reason, however, is that Telenor turned mobile telephony into a mass market in many Asian countries (Table 3).<sup>172</sup> The number of its customers increased to 186 million by 2019.<sup>173</sup> Ericsson and Telenor are currently the largest telecom companies in Scandinavia (see Table 2).

170. The market value in October 2019 of Telenor and Telia was NOK 263.3 and 187.6 billion, respectively. Interview with Frank Maaø, from DnB's Equity research in "Det var mange kokker og mye søl i Telenor-Telia-fusjonen," *Finansavisen*, October 18, 2019.

171. Telenor, *Telenor Annual Report 2001* (<https://www.telenor.com/investors/reports/2002/annual-report-2001/>); Baksaas, "Here, there and everywhere."

172. Baksaas, *Min Historie om Telenor*.

173. Telenor, "Telenor Group at a Glance" (<https://www.telenor.com/about-us/telenor-at-a-glance/>).



Table 3 Telenor's country-by-country reporting, financial year 2019

NOK in millions	Revenues	EBITDA	Capex (incl. licenses & spectrum)	Profit before taxes	Corporate income tax (CIT) paid	Headcount (FTE)*
Norway	28,658.0	11,199.9	6,495.6	4,110.4	3,701.8	4,350
Sweden	12,857.0	5,289.3	1,815.7	3,070.9	563.6	1,812
Denmark	4,871.3	1,390.7	516.6	535.9	80.8	1,215
Finland	3,434.4	1,020.0	879.5	167.5	13.3	1,512
Pakistan	6,033.1	3,125.3	2,416.2	53.0	232.5	1,812
Bangladesh	14,980.2	9,377.6	1,901.6	6,456.5	3,144.4	2,303
Myanmar	5,759.2	3,363.9	884.4	547.4	(28.7)	798
Thailand	22,994.6	8,811.8	4,210.3	2,751.5	213.6	3,945
Malaysia	13,517.6	7,250.5	2,116.5	4,343.3	981.4	1,844
Telenor Group	113,665.9	50,276.0	21,359.0	20,968.5	9,032.7	20,044

Note: FTE = full-time employees, as of December 31, 2019.

Source: Telenor, *Annual Report 2019* (<https://www.telenor.com/wp-content/uploads/2020/03/2201011-Annual-Report-2019-Q-a97d1b270234873cebe5901dfe14e8c2-1.pdf>).

Telenor is the first Norwegian company to succeed on a global scale in a consumer market. Despite its success, there is no dominant public narrative or captivating corporate narrative about Telenor's development over the last thirty years. Telenor has struggled to come across with a captivating corporate narrative. It has tried to accentuate that mobile communication empowers poor people in Asia. Still, the emphasis by the media and commentators is often on the successful transformation from an old bureaucratic institution to a profitable multinational company.<sup>174</sup>

Telenor has delivered impressive value to its shareholders, of which the Norwegian government is the largest. However, shareholder value alone does not appeal to a greater purpose, which is necessary in creating engaging narratives. One hurdle is that there are few positive externalities from Telenor's business in Norway, except for financial returns and greater value for the business community.<sup>175</sup> This means there is limited foundation for impression management. This may be at

174. Baksaas, "Here, there and everywhere"; Baksaas, "The Telenor Story," lecture at Eierskapskonferansen, 2005 (<https://www.regjeringen.no/globalassets/upload/kilde/nhd/prm/2005/0077/ddd/pdfv/241394-eierskapskonf05-baksaas.pdf>); Torger Reve interview, in "Telenor: Norges mest vellykkede omstilling," *Ukeavisen ledelse*, December 4, 2015.

175. Torger Reve (and colleagues) has been in charge of several large studies of Norwegian business, inspired by Michael Porter's theories. See Reve, Lensberg, and Grønhaug, *Et konkurransedyktig Norge*; Reve and Jakobsen, *Et verdiskapende Norge*; Reve and Sasson, *Et kunnskapsbasert Norge*. Reve claims that Telenor is not part of any Norwegian cluster, and that there are few sub-suppliers or other companies that benefit from Telenor. Reve interview, in "Telenor: Norges mest vellykkede omstilling," *Ukeavisen ledelse*.

heart of Telenor's troubles related to others writing its history. Telenor commissioned a history book for its sesquicentennial anniversary in 2005, but was allegedly reluctant to publish the last volume, which covered the modern era. The author, Lars Thue, was critical of the fact that revenues from the Norwegian network subsidized Telenor's foreign investments, and that Telenor had scaled down its R&D to prioritize shareholder value.<sup>176</sup> Telenor commissioned another book, but it halted the work in 2019 for reasons never made public.<sup>177</sup>

Time and again, Telenor has been criticized for cutting back on research,<sup>178</sup> which is a testimony to the enduring strength of the public innovation narrative. This constant critique has exhausted senior Telenor managers. For example, at a closed seminar in 2017, Jon Fredrik Baksaas was asked why Telenor had reduced its research activities. He sounded fed up when he responded: "Yes, we could have continued to research ourselves to death, or we could go abroad and make money. We did the latter."<sup>179</sup>

## Conclusion

This conclusion will return to the initial research questions. First, why did Telenor choose an arm's length relationship with its equipment supplier starting in the 1970s? Second, why has the Telia-Ericsson narrative remained so prevalent, even after it seemed anachronistic? Finally, why has this story of Telenor not been told?

In the postwar years, Telenor was criticized for neither cooperating with nor supporting the telecom industry. This critique was based on the public innovation, collaborative, and Telia-Ericsson narratives. Telenor rejected the critiques and the narratives from the 1970s, asserting that it would have limited its freedom to choose the best equipment in terms of price and quality. Telenor was a pioneer in using tenders and strict legal contracts with suppliers. Its historical experience is important in explaining its strategy. First, it had little reason to be inspired by the public innovation narrative. Despite continuous efforts from different government bodies, the Norwegian telecom and IT industries had proved unable to develop themselves. Second, the

176. Thue, *Norsk telekommunikasjonshistorie*; "Historien Telenor ikke ville ha," *Computerworld*, March 31, 2004.

177. "Skrinla Telenor-historie: – Det var mangler i den," *Dagens Næringsliv*, February 19, 2019.

178. "Forskere kritiserer Telenor-forskning," *e24*, June 18, 2011; "Telenor sparker forskere igjen," *digi.no.*, May 6, 2004.

179. Jon Fredrik Baksaas, at "Telenor: fra norsk forvaltning til global aktør," March 16, 2017, a seminar arranged by Econa. Author was present.

memory of specific interfaces that limited Telenor's choice left a strong mark, and key actors were exceedingly careful to avoid a similar situation in the future. Finally, Telenor's history provides little resonance for the collaborative narrative. Telenor's leadership did not have to read Oliver Williamson to be familiar with opportunism and "self-interest with guile"; they learned it firsthand from the equipment suppliers.<sup>180</sup>

Although Telenor's procurement strategy in the 1970s was based on its historical experience, the PTO had shown an early preference for using tenders and importing technology. This accords with the notion that the Norwegians lacked confidence and tradition in making technology-intensive products, and contributes to our understanding of why Telenor embraced a new regime based on sourcing and procuring technology on an arm's length basis.

The liberalization that swept over Western countries in the late 1970s reduced stakeholder obligations across several industries, resulting in the increased use of tenders and arm's length contracts in buyer-supplier relations, not only in the telecom but also in a number of other industries.<sup>181</sup> It is a paradox that when digitalization, liberalization, and globalization transformed much of Norwegian and international buyer-supplier relations, the public innovation and collaborative narratives grew stronger, not least the Telia-Ericsson narrative.

One explanation is that the Telia-Ericsson narrative was merely an account of the past, although publications also highlight policy implications. A more plausible explanation is that it was in line with the growth of other post-Fordist and postindustrial narratives in the 1990s, and many scholars were opposed to liberalization. The Telia-Ericsson narrative included positive features, or aesthetics qualities, such as trust, cooperation, and innovation; and it was a key component in a larger national industrial narrative in Sweden that emphasized trusting and collaborative relationships. Without pointing at any causality, it is also relevant that the narrative served powerful interests, such as Ericsson and the Wallenbergs.

Finally, this narrative was promoted by numerous Swedish scholars. It is obvious that Ericsson benefited from the cozy relationship, but did Telia and Sweden? There are three propositions that suggest the answer is yes. First, Sweden benefited by gaining a world-class telecom network; and second, Telia benefited from having only one type of switch in its network. Third, Telia benefited in general from its close relations with Ericsson. It is difficult to validate these assertions. The fact that

180. Williamson, "Opportunism and Its Critics."

181. Christensen and Rinde, *Nasjonale utlendinger*; Engen, "Norwegian Petroleum Innovation System"; Christensen et al., *Storebrand og forsikringsbransjen*.

Telenor chose a different strategy, with considerable more success, *does not* support these propositions.

The point I make here, however, is not whether these propositions are valid but why Swedish scholars do not question them. Historians and other scholars should always bring a Popperian approach to their analysis by trying to falsify critical assumptions and propositions. This is especially important when their research feeds into a strategic narrative. Business historians should keep investigating the validity of narratives and their implications, and this does not have to be at the expense of researching the “narratives’ origins and effects.”<sup>182</sup>

Finally, this story has remained in the dark, as Telenor did not create a narrative to legitimate its strategy in dealing with equipment suppliers. It could have incorporated several elements from its own history or from the emerging liberalization, but it did not. Telenor remained focused only on price and quality, facts and data, and being apolitical in its decision making. When asked about the importance of narratives, feelings, or animosity toward the “Big Swede,” interviewees from Telenor deny any of that had an impact on their work. They were much keener to talk about how efficient the network had become.

Telenor’s “rationality” could be perceived as a narrative in itself, in that it functions as a model that reduces complexity and provides sense making. It also bestows legitimacy to the strategy, both the process and the result, of using the tenders. Still, it has never been presented as a story. Maybe business history has been too focused on reductionism and instrumental rationality in general, but it seem apposite in this story. Telenor was eager to convince equipment suppliers, as well as others, that there were no greater purpose to their relationships or procurement style other than getting the best deal in terms of price and quality. The Telia-Ericsson narrative, with its aesthetic qualities, trust, wider stakeholder interests, and assumed positive externalities, was rejected by Telenor because it would limit their decision making as related to procurement. Telenor’s strategy was to be fact-based, transparent, and fair. Future research should look deeper into the role of narratives and culture of companies that pursue market-conforming strategies. This picks up on Lipartito’s challenge: “Locating culture in what we have assumed to be non-cultural.”<sup>183</sup>

Telenor did not use any narrative to promote its successful strategy in the 1970s and 1980s, but why has the company not promoted this history, and why have others, including researchers and commentators, not picked up this story? One reason is that the nature of

182. Hansen, “Business History,” 700.

183. Lipartito, “Culture and the Practice of Business History,” 14.

buyer-supplier relations became less important after the 1980s. Their own equipment and technology were not deemed essential for Telenor's success. Given that buyer-supplier relations and technology is now perceived as less important, maybe this has little to offer Telenor's present business challenges. Finally, this story is related to the disappearance of STK and EB; while this is not problem for those familiar with the need for creative destruction, it is hardly a good selling point. Still, the history of Telenor's buyer-supplier relationship has one quality that could be brought forward; namely, that it offers a connection and transition between Telenor's troublesome past and its successful present. The past difficulties are what motivated the former PTO to invest in knowledge of equipment and to put price and quality first, leading it to become a first-class service provider. The company could use this in a narrative that combines historical genesis and retrospection.

Telenor has struggled to create a narrative about its successful development because it can neither draw on positive values such as trust, innovation, and cooperation, nor can it offer positive externalities to Norwegian society other than shareholder value. Key elements in Telenor's success are related to transactional costs; legal contracts; distrust; and emphasis on price, quality, put-options, and shareholder value. Many may appreciate such features and values, but there is a lack of soft values or greater purpose. It is probably no coincidence that Baksaas made his comment about research and money making at a closed seminar that was shareholder-friendly; it probably would have backfired if he had said it in public.

George Orwell's famous aphorism from *1984*—"Who controls the past controls the future ... who controls the present controls the past"—has been cited in support of narratives that are performative.<sup>184</sup> It does not sit well with this story. Those who control the past, Telia and Ericsson, do not control the present, and those who control the present—in as much as Telenor does that—do not control the past.

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