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and Future States of the Service Market**

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The role of socio-technical devices in framing the current strategic issues and future states of the service market

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Abstract

The aim of this paper is to inquire into the role of socio-technical devices like value metrics and accounting in organizing the service market. The authors provide a case on how such devices participates in framing the market for transportation during the introduction of large-scale bridges. In addition to the traditional role of accounting as a representation device, the authors also show how these devices participate in performing the service economy – undermining

and re-drawing organizational boundaries in unexpected ways. The presence of multiple connections with socio-technical devices are then brought into an explanation of the overflowing and reconfiguration of the transportation market:

More cost control, market orientation and privatisation of transportation as framed by management accounting and control (MAC) played an important role in producing the unexpected overflow in terms of a major corporate and public expansion of transportation services. Initially, MAC became part of a controversy that paved the way for this overflowing. The decisive moment in the process being the simultaneous establishment of a new competing calculative frame, initial public offering (IPO), consisting of the capital markets for new prospective investments and a new strategic role for bridges. While MAC tended to exclude the bridges by locating them in a context outside the calculative frame it self, IPO reframed the role of bridges by including them. Calculations came to differ accordingly; MAC came to represent corporate rationalization within a given frame as defined by new market constraints imposed by the bridges once they were in place. By contrast, IPO came to represent both corporate and public expansion of transportation – in effect going along with what was already inscribed into the bridges themselves. Here, bridges acquired a strategic role in providing the decisive arguments against MAC/for expansion in due time, that is, before the opening up of bridges. As it turned out, IPO outperformed MAC and participated in the mobilisation of major public funding for corporate expansion into the international market for transportation – while framing it as part of the initial prospect of becoming more private.

Relying upon the work of Michel Callon, it is concluded that the unexpected expansion of both public and corporate service provision is closely related to the role of socio-technical devices in framing and qualifying the current strategic issues and future states of the service market.

THE SIGNIFICANCE OF SOCIO-TECHNICAL DEVICES IN PERFORMING THE ECONOMY

In *The Laws of the Markets*, Michel Callon (1998) allows material entities and arrangements (writing mediums, figures, inscriptions, economic theory) to play a central role in performing calculations. Accounting tools and marketing tools perform the economy, they are vital in performing calculations. These socio-technical devices facilitate the framing and construction of a space of calculability – without them, economic agencies could barely exist. "In order to become calculative, agencies do indeed need to be equipped" (p.6). The question that this paper address is close to the above mentioned concerns: What does it take to become an economic agency, capable of performing calculations, and hence to perform the economy? The aim of this paper is to inquire into this question by investigating the material investments that is required to establish a calculative frame capable of linking the corporate enterprise to multiple markets. By now, it should be recognized that accounting and organizational research have paid considerable attention to how technologies of accounting not just record but participates in performing the enterprise and its governance (Johnsen and Kaplan, 1987; Chua ,1995; Robson, 1992; Miller, 1998, Mouritsen, 2001; Mouritsen *et al.* 2001; Lowe, 2000). Czarniawska (2000) and Gustavsson and Czarniawska (forthcoming) have argued that technologies participate in performing human and corporate identities. In a recent case study of a start-up Internet company, Kreiner and Mouritsen (2003) also investigated the link between the firm's management accounting and control devices such project planning systems and maps and how the firm came to circulate through the capital markets. The authors suggest that such devices successfully participated in making the firm attractive and sellable in a series of mergers and acquisitions. What the present work may add to this research is an account of the work and investments required to establish a device capable of linking a firm to

financial markets. Further more, in situations in which a firm since long has on-going operations, there should also be an accompanying history of calculative devices already in operation. The work and investments required to establish a new and perhaps competing calculative device in this kind of situation, will be investigated further. Such an inquiry should then be capable of accounting for the connections that simultaneously involve the emergence of competing calculative devices and changing markets. Miller's (1998) expression 'The margins of accounting' draws attention to the same issue, i.e., how the boundaries of accounting become temporarily stabilized and re-drawn. Our inquiry is supported by a case that accounts for the boundaries of calculations – how these boundaries became established and re-negotiated so as to pave the way for the competing calculative frame allowing for market expansion.

Overflowing: linking calculative devices to market changes

Before entering into the finer details of the case, a few words is warranted to articulate the connection between the twin notions *framing/overflowing* (Callon 1998) to be used in furthering the analysis. In the traditional economics approach framing is the norm (what is desirable and considered as the rule) and overflows are leaks (what is undesirable, e.g. as in economics 'market failure'¹). Overflows are now treated as the exception that must be contained with the help of appropriate investments. By contrast, in the constructivist- and anthropological approach (Callon 1998, Callon et. al 2002) overflowing is the norm, and framing is expensive and always imperfect: "overflows are the rule and framing is a fragile, artificial result based upon substantial investments" (Callon 1998, p.252). In the standard economics explanations overflows is the exception that must be explained. By contrast, constructivist research would seek explanations to framing as this situation is to be considered the exception that should be

accounted for². Since such frames are always imperfect, possible points of 'leakage' warrant particular attention: What kinds of investments are required to contain such leakages and maintain the frame? What produces leakages, overflowing and possible breakdown of a frame?

In 'cold' situations framing persists and agreement is easily achieved. There is only limited negotiation over how to frame identified overflows. "Actors are identified, interests are stabilized, preferences can be expressed, responsibilities are acknowledged and accepted" (Callon 1998, p.261). By contrast, in 'hot' situations, overflowing is abundant and controversy is everywhere. Even the identities and responsibilities of actors are at stake as extended negotiation over the nature of overflows takes place, Callon (1998) further argues. The market can thus consist of both 'hot' and 'cold' situations and it becomes a matter of empirical investigation to say anything more precise regarding the degree and nature of the negotiations. It becomes important to investigate the moments in which framing breaks down – when boundaries become (again) negotiated and overflowing occur. The twin notions framing/overflowing allows us to ask questions regarding the boundary of a calculative frame. The issue of inclusion/exclusion should be part of such an investigation. What is being taken for granted in a calculative frame, e.g. regarding particular investments in markets, may simultaneously also become problematized and negotiated so as to constitute a leakage point in which overflowing and re-framing can occur. A different, perhaps competing frame of calculation may emerge as an integral part of such overflowing. The twin notions framing/overflowing thus allows for registration of different - yet possibly related, market situations according to the degree and nature of the negotiations involved.

FRAMING AND OVERFLOWING IN THE SERVICE MARKET¹

Establishing the MAC-frame

The ferry corporation was a 100% state owned enterprise dedicated to transportation. Services were directed to both public and private customers, including the transportation of goods, vehicles and people. In that respect, it did not differ so much from public operated transportation on railways.

Transportation services were often carried out in co-operation with the state-owned railway corporation. The ferry corporation was one of its subsidiaries – indeed a necessary supplement to the railway in a country divided by the sea. But these techno-economic arrangements, which had served both so well for many decades were soon to change. In 1986, the government decided to build a combined car and railway bridge on the key domestic traffic route between Zealand and Fyen that were operated solely by the ferry corporation. The plan was to open the bridge 10 years later. One of its main customers, the state-owned railway corporation, would then suddenly be in a position to entirely bypass the ferry corporation's main route. Instead of being a customer and partner dependent on the services provided by the ferry corporation, the railway corporation suddenly became a possible competitor, all due to the emerging bridge. Indeed, all customers would in principle be in a position to entirely bypass the ferry corporation due to this new bridge. A major source of revenue would then be replaced by a black hole in the balance sheet. This scenario became a major concern to top management. But the corporation were also making money on other routes.

¹ All quotations are translated from Danish to English by the present authors.

Still, there was this other major revenue stream to rely upon. The second largest revenue stream came from the international route between Denmark and Sweden between Copenhagen and Malmö. In 1991 the two national governments jointly decided to build a combined car and railway bridge a few kilometres south of this ferry-route. The opening up of this second bridge were scheduled to take place in the year 2000, that is 2 years after the opening up of the first domestic bridge. With both bridges in place, the major revenue streams (approx. 2/3 of the total) would in principle be in jeopardy³. Could this be the end of the ferry corporation? How does one compete against such combined bridges as a ferry company? Should they opt for new routes, new markets and sources of revenue, this time at a safe distance from emerging bridges? Should they instead rationalize operations and cut costs? Or should they opt for a combination, generating both new sources of revenue while cutting down on operating expenses and costs? Or should they simply give up? By 1991, top management was very concerned about the future prospects of the ferry company.

In the very same year, the government appointed the chief finance officer at the railway corporation to become the ferry company's new chief executive officer (CEO). The task the new CEO sets for him self was to straighten up the financial situation and the management accounting and control. In addition to more management accounting and control, members in the management team also considered expansion into new international routes. Investment calculations were conducted as part of these considerations. These calculations were based on well established measurements, i.e., Return On Investment (ROI)⁴. As figures emerged from the ROI calculations, few such investments proposals came to be evaluated as acceptable. "We made investment calculations on the future benefits of investing in new ships at Helsingør-Helsingborg. [The Demark-Sweden link close to the emerging bridge]. The old ferries were staffed with people employed by the state. If you buy new ferries that require a smaller staff,

you must consider that retrenching a state official will cost 900,000 [DKK, or 120 000 Euro. At present 1 EURO=7.5 DKK] crowns. By *including these costs*, my calculation showed that it was not profitable”. [Emphasis added.]. In total, the CEO calculated with the lay-off of 2000 employees, mainly due to the emerging new bridges and partly due to possible investments in less labour intensive ferries.⁵

New investments into new expansions internationally were deemed not to yield the necessary returns on investment. The new CEO and the Parliament committee on transportation came to the same conclusion regarding this issue. When the Parliament considered the issue of expansion, it appeared that it considered the risk of financing such investments too high. Instead of furthering the plans of expansion, top management restored their faith in getting the accounting straight. During the years 1991-1995 a number of new management accounting initiatives emerged: The implementation of responsibility accounting by dividing the organization into profit- and investment centres, were to be followed by similar initiatives such as the implementation of a system to assist cost control in relation to the ferries, the implementation of IT based financial management to monitor and control the cash flow. Consultants with appropriate expertise in accounting were also engaged on more than one occasion. Consultancy reports followed with suggestions in line with the latest management accounting principles. Among other things, the report argued for investments in new computer-based accounting systems and more market-oriented routines for performance evaluation.

As the more expansive revenue-oriented option stranded on the less favourable ROI calculations, the second option that focused on management accounting and control (MAC) came to dominate. MAC was furthered with due help of the National Audit Office that as a routine were conducting both financial and value-for-money auditing, as well the Ministry of finance that assisted in

developing the ferry corporation's accounting systems. In this sense, the period between 1991-1995 came to be characterised by the introduction of new principles to tighten control over existing resources and associated cost reductions, i.e. management accounting and control – the becoming of what we here term the *MAC frame*.

As already suggested above, this frame came to consist of several socio-technical devices, like the ROI value metrics and the many initiatives to install control over costs and cash flows through new accounting systems. In particular, the way the ROI calculations came to *draw the boundary* of the investment in new ferries warrants a few more comments: to begin with, there were the externally derived rent coming from the capital market allowing for an estimate of the cost of capital. Capital markets thus provide a rent and measure for costs of capital – defining the hurdle for what is to be judged as acceptable returns from the investment. In addition there was this other cost to be included as well, i.e. the lay-off of people partly due to the investment in the capital assets and partly due to emerging bridges. New ferries were assumed to require less people in operations. What was gained in operating expenses in terms of reduced cost for labour on the new ferries would then come as a return in the form of increased costs for early retirement. Such increased costs were then to be *included* in the CEO's ROI calculation – as if they were beyond negotiation.⁶ Yet, there are two other socio-technical devices that should be attended to – the emerging bridges themselves: Bridges came to be part of the threatening conditions that the ferry corporation had to adapt to. The MAC-frame became solidified by the particular role it assigned to bridges – as being part of the irreversible background conditions that called for adaptation in terms of increased rationalization, cost efficiency and internal control. With the MAC-frame firmly in place, the option for further expansion ended up in an impasse⁷. Instead of further expansion of resources, much work and investments - also the

establishment of the MAC-frame incurred costs, came to be dedicated to managing existing resources in a more efficient way.

Reframe/Overflowing. The emergence of a competing frame of calculation – negotiating a new expanding market situation for the Ferry Corporation

Barely in place, the MAC-frame became an entity to be problematized by emerging *concerned groups* (Callon, 2003). The CEOs notion of ‘development’ was deemed problematic by navigators and other employees from the ferry corporation. Critical articles were published in the newspapers and signed by the navigators, claiming that ‘development’ now started to look very much like rationalization, downsizing and possible liquidation. A call for the resignation of the CEO was put forward. Also the union representatives saw ‘development’ as problematic – as essentially meaning that almost 2000 members of the union were soon to become unemployed. The union had previously demonstrated with some success that talk could be followed by action bringing transportation at sea and through harbours to a stand still. The bridges, once in place, could perhaps also bypass the union in that respect: There were indeed members of the parliament that argued that an important reason behind the decision to build the first (domestic) bridge was to downsize the union’s negotiating power when organizing the operating conditions of the transportation market. With the bridge in place, a possible ferry strike would count for little - without the bridge such a threat was very real. This possible shift in negotiating power between owners/public representatives and unions seems to be closely related to the way concerned groups like unions and parliament members include such socio-material arrangements like bridges in their calculations. With a bridge, owners of public transportation would be much better equipped to engage in negotiations with the unions regarding the operating conditions of the transportation market. Union representatives seemed to have recognized this emerging shift too. They

put forward the argument that rationalization of their members due to bridges would cost the state a substantial amount of money in compensation – approximately 900 000 crowns for each - all according to the employment act. Would it not instead be better for the owner to opt for expansion, and hence reduce such costs? Would it not be better to also avoid severe and prolonged strikes during the 3-5 years period to come, that is before the opening up of bridges? In addition to concerned managers in the ferry corporation, there were now also the concerned navigators and union representatives –and indeed there were now concerned members of the parliament and the government.

While the top management going along with the MAC-frame failed to include bridges in their calculations by locating them into the background, union representatives and navigators, seemed perfectly capable of reversing the role of bridges by putting them centre stage in calculations that came to favour the argument of expansion. Their voices carried all the way to the Parliament committee on transportation, urging for expansion instead of management accounting and control and possible liquidation. At this point in time there were less than three years left before the opening up of the first bridge. Would the parliament committee now approve what it had disapproved in previous years, expansion in due time, that is, before the opening up of bridges?

The right wing parliamentary parties wanted the ferry corporation to be privatised, the sooner the better. Even the Minister of transport and the Minister of finance supported the idea initially. “It was the Prime Minister who stopped the discussions about privatisation” (Permanent secretary of State, Ministry of transport). Instead, the idea of a limited ferry corporation came up, that is, an entity to be separated from the state-owned railway corporation. As the idea became further articulated, it turned out to be similar to the idea of the privatised company already proposed by the right wing opposition⁸. The major difference

was that of timing. While the opposition would like to see privatisation at any time, the social democratic government proposed an intermediary step called ‘limited company’: In order to become private later on, the company had first to become a company on its own - separated from the rail-way corporation. Then it needed to develop its businesses accordingly, by conducting proper investments. Only then could it be sold on the stock market so as to become a privately owned company. If this intermediate step was not taken, any attempts at privatisation would run the risk of being a failure: either the company would be sold off at a too low price (with unacceptable loss to the present owner, the state), or worse, the company would soon be in jeopardy because of inadequate adaptation to the new competitive situation it would face as a privately operated corporation.

Closely tied to this idea of timely privatisation and separation from the state, another socio-technical device emerges, Initial Public Offerings (IPO). In order to attract the public, that is, private investors on the capital markets –it became necessary to “ increase the size, to introduce it to the stock exchange. It was a fight against time to increase Initial Public Offering (IPO) in time, to develop [the ferry corporation] in such a way that it could be sold to private investors” (Chief financial officer in the ferry corporation). IPO is a written prospect to be made public that sets a value estimate on the offered company – a value that prospective private investors on the capital market may find attractive or not depending upon their own evaluation of the company and its future prospects. So, to become attractive in the eyes of the private investors, the company had first to be further developed through public funded investments. In particular, it is necessary to increase its size before introducing it to the stock market. This positive or attractive association between increased size, and capital markets and private investors, deserves a few comments.

Instead of framing the capital markets as delivering a rent that allows for an assessment of what is an acceptable return on investment; such markets are now allowed an entirely different role. Capital markets are included in both the ROI- and the IPO value metric. In the former, capital markets are represented by the rent. This rent is then used to calculate a value estimate that sets a constraint defining what investments are acceptable or not. In the IPO value-metrics, capital markets are no longer represented by the rent alone. Other entities and identities are allowed to emerge such as the private investor and associated risk capital. The role of the IPO value metrics becomes less that of being a constraint and more that of representing a possibility, allowing for investments that previously were considered unacceptable by both the CEO and the Parliament going along with the ROI metrics. Yet, included into the emerging new frame of calculation are not only capital markets and private investors. In contrast to the ROI metrics, IPO also includes the very *timing* of investments. Before going private on the stock market, public funded development and investments must be timed in a particular way. Emerging bridges thus translates into a particular time frame – investments must be made in due time, that is, before the opening up of bridges.

As it turned out, socio-technical devices such as bridges became instrumental in formatting the timeframe – to conduct “Initial Public Offering (IPO) in time”. Hence, all the necessary investments must now be made before the opening of the bridges. Only when these investments are made – in this timely fashion, will the company become sufficiently attractive so that the time will come for the next step – to go private through an IPO on the stock market. Actions and dispositions had to be organized accordingly: to *attach* (Callon et al., 2002) or associate private investors to the IPO – to convince them of the value of the company, it was first necessary to make appropriate investments in due time.

The emerging calculative frame, now including the bridges in a role at the centre stage, also allowed for a timely shift in the discussion about the future of the ferry company. Instead of a prolonged debate for/against privatisation, the discussion could now move ahead and concentrate on the second task, i.e., the appointment of a board of directors for the new limited company that was under way. “ The political world (i.e. Parliament and Government) could not accept the fact that ferry routes were closed down due to strikes and conflicts before the bridge was opened. The management of [the ferry company] had to secure the transition, maintain order and increase marketability” (Permanent secretary of State, Ministry of transport). To secure this kind of order, IPO seemed to perform in a way that the ROI measure was less able to do. With an IPO in their hands, also management came to be associated with a different role and identity. The IPO afforded a de-association with the role and identity of being the ‘company butcher’ so closely associated with MAC-ROI frame of corporate rationalization. The IPO device allowed for a different and more expansive corporate future, as well as a different and more entrepreneurial role for management. The escalating conflict between management and concerned groups like navigators and other employees could be put to a rest.

The minister of transport suggested to the Parliamentary committee of transport that the former CEO (1986-91) of the ferry company should be appointed as the new chairman of the board of directors for the ferry corporation. The argument was carefully articulated so as to please the liberal opposition: The minister argued that the new chairman was very interested in privatisation, market economy and competition. His private sector background, together with specific experience within the private shipping industry, was deemed to be entrepreneurial virtues highly valuable for solving the upcoming tasks for a new chairman. The new chairman entered in mid 1995. One of his first measures was to fire the CEO that came to be associated with the MAC-frame. Not all

members of the committee were entirely convinced about this new state of affairs: “Do not believe anything of what the minister and the Permanent secretary of State, Ministry of transport tell you about the chairman of the board. He is closely related to the Social Democratic Party although they denied such a relationship. What has taken place in the [ferry corporation] is terrible” (Member of committee of transport, MP for the Conservative Party).

With the new top management team in place (a new CEO was handpicked by the new chairman, and then approved by the parliament committee of transport); former initiatives emphasizing management accounting and control became less prioritised. : “The main task is to assess how we put the ferries into operation in an optimal way....we have dropped all [ROI] calculations. You cannot calculate the profitability of the routes. We base our considerations on trends. We may anticipate the costs of the ferries, but we are working under heavy pressure of time”. Timely expansion, that is, investments conducted before the opening up of bridges, had become the main consideration for all concerned, the parliament and their transport committee, the government, the unions, and indeed the new CEO and chairman. The chief financial officer (CFO) at the ferry corporation acted accordingly and quickly buried the consultant report that had argued for better cost control and accounting. The CFO were encouraged to attend to the more pressing tasks – to prepare for privatisation, to consider an IPO and what it would take to devise an investment program that would boost the value of the company on the stock market. The MAC-frame was now undergoing a rapid dismantling among corporate members. In its place, a new competing frame had emerged, which we will simply name *the IPO-frame*.

By now it should perhaps be emphasized that this is not a case of a clean and perfect substitution from one frame of calculation to another: The situation we describe is a more complex one, in which there is a simultaneous emergence of a

competing frame, including also a few interesting transformations. Here we will just recall a few critical moments related to the MAC-frame and its reliance on ROI. The ROI calculus and the associated conclusion to abstain from expansive investments was once advocated by the former CEO (1991-95) and then supported by the parliament committee of transportation (in 1993). One year later, the ROI calculation and its associated conclusion became problematized and indeed undermined by diverse concerned groups- including now also the members of the parliament and the government. How can this transformation be explained? As already suggested, the shift in government does not exhaust the explanation. *Also the government and the parliament and associated committees needed to be adequately equipped.*

To begin with, the very transformation into the ‘hot’ situation in which MAC becomes controversial - in which overflow emerge, must be explained:

The bridges were not just part of a given context of calculation. Instead we claim that they were inscribed with the norm of expanding transportation and played an active role in reframing (or recontextualizing) calculations from ROI to IPO. Humans and institutions going along with the norm of expansion opted for IPO and in effect included the bridges into the calculative frame – they became the decisive argument for expansion. Hence, emerging bridges became not so much of a threat as it became an opportunity and argument for expansion, notably by emerging concerned groups.

Further more, bridges in the IPO calculation translates into a time frame – investments must now be done within a particular time frame defined by the opening of bridges, i.e., before the market for transportation becomes redefined by their existence. These calculations, although violating MAC/ROI norms for calculation in several respects (e.g. by not paying much attention to ROI measures, by being qualitative), participated in shaping the very future it was

anticipating. What was deemed relevant was IPO, i.e., financial value on the stock market *after multiple* investments had been made – not assessments of *individual prospective* investments according to ROI. But why IPO? Why not more MAC?

We have suggested above that an explanation of their relative success at this turning point can be sought in the way bridges were accounted for. While the MAC frame tended to treat bridges as passive objects in the background of a given context of calculation, the IPO frame reversed the role of bridges and placed them in the foreground - allowing them an active role in re-defining the very context of calculation: With emerging bridges the context of calculation changes. Concerned groups calling for expansion emerges with emerging bridges. The MAC frame turned out to be incapable to deal with the emerging concerned groups – *incapable of containing the overflow it participated in producing as more management accounting and control became installed*– as expansion ended up in an impasse due to the less favourable ROI calculations. As it turned out, bridges and associated norms for expansion of transportation carried more weight than MAC and associated norms of management control (ROI- and cost control). Instead of going along with the MAC-frame, the new social democratic regime went along with the expansion and explorations of new possibilities so closely associated with the IPO-frame – in effect also going along with what was already inscribed into the bridges, to expand transportation.

The CFO and the new management team solved their tasks accordingly, as can be seen from the investment program summarized below:

Table I: The Investment Programme during the years 1996-1997(to be updated with months/years and figures):

1. Acquisition of Spodsbjerg-Taars: 6.66 million Euros
2. Investment in a new ferry for the Helsingborg-Helsingør route: 20 million Euros
3. Stocks in Catlink: 4 million Euros in cash
4. A new ferry for Catlink: 30 million Euros
5. Acquisition of Europa line: 14.5 million Euros
6. Investment in two new ferries at Rødby-Puttgarden: 66 million Euros
7. New harbour facilities in Rødby: 33 million Euros
8. New harbour facilities at the Gedser-Rostock line: 6.6 million Euros
9. Investment in new branding (the name of the FC): 5.3 million Euros etc. etc.

1.8 Billion DKK (or 240 mill. Euros) were invested during 1996⁹ and followed by an additional XX million DKK (or xx Euros) in 1997. In total approx. 2.X Billion DKK (or XXX mill. Euros) were invested during these two years. As can be seen, investments were of different kinds. Some were mainly related to rationalization and expansion of transportation capacity in existing operations, notably the ferry line Helsingborg-Helsingør that were soon to enter into a direct competitive relation with the emerging new bridge between Denmark and Sweden. The same kind of calculation was done for the investment in the Rødby-Puttgarden line. In the annual report from 1997, this investment is further described as developing a “joint Danish-German concept ...an efficient traffic-machine, that can meet the competition from the emerging [domestic] solid connection over Storebaelt.” (p.7). Other investments simultaneously reconfigured both the market- and the corporate structure through the absorption of competitors. For example, the ferry corporation bought a private owned and domestic operated ferry line between Spodsbjerg and Tars. Due to these investments and acquisitions, the state owned corporation now started to expand on the transportation market in northern Europe while growing in size. In the

annual report for 1996 it is further explained that: “ Since ten years back, it has been clear that major ferry lines will be replaced by solid infrastructure [bridges] and that the state will cease having any interest in operating a ferry company. The purpose behind the establishment of [the limited company] was to exploit 125 years of knowledge and capability in ferry operations with the aim of selling off the stocks in the best possible way. ...*a strategy that could only be followed if ...given the necessary economic discretion.*” (p.5, Emphasis added by the present authors).

The IPO frame and its close association to the stock market, we suggest, turned out to be instrumental in performing the favourable economic conditions of ‘necessary economic discretion’. Yet, these very conditions were only to become temporally stabilized at the point of making them public in the annual report from 1996. The ‘economic conditions’ were also subjected to continuous negotiations during program execution. They became part of a heated debate over the construction of the balance sheet - beginning with the annual report from 1995, at the end of the very first year as limited company. There were two major issues that surfaced, one being the reservation of funds for early retirements and dismissals, the second being a payment to the state and owner for the appropriation of fixed assets like terminal facilities and goodwill as part of becoming a limited company. Both issues came to be associated with serious possible ramifications for the annual report for 1995 as well as for those to come. It became necessary to negotiate accounting rules and regulations as part of program execution.

When preparing for the annual report for 1995 state officials from the National Audit Office pointed out that it would be against the law to operate a company in which own (equity) capital had turned negative in the balance sheet. This remark came at the very end of the year and produced certain concerns among those involved. There were only a few weeks left before the books were to be

closed for the annual report and suddenly the National Audit Office would like to write critical remarks in the report. What was at stake was the following:

Management had made certain dispositions on the right side of the balance sheet because “bridges opens, and with them some of our operations will be closed” (CFO). The management team calculated with a cost of approximately 800 mill. DKK for early retirement of approximately 1000 employees.¹⁰ According to law and regulations of private companies, such extraordinary costs should also be accounted for in the balance sheet by making appropriate reservations in funds. The 800 mill. DKK figure were further communicated to their owner, the Ministry of transport and compared to the Ministry’s own figure in the official account of mere 56 mill. DKK. In meetings with their owner, the CFO of the Ferry Company argued that the Ministry had underestimated these costs in their own accounts, “the state had made an entirely different set-up [than us], as if they had closed their eyes for this question of what to do with all these employees”.

But there were also this other disposition, related to the new juridical status as a limited company: 1.2 billion Danish crowns in flotation expenses were due to payment at the end of 1995 to the Ministry of transport/the State, as part of the agreement to complete the transition into a limited company. Together the two dispositions added up to 2 billion DKK and generated the illegal deficit making up the negative own (equity) capital.

Figure 1 below is a reconstruction of the situation producing the debate. What is at stake is the construction of an appropriate balance sheet. As such, it is also a quite relevant site description, conducted and written by one of those involved, the Chief Financial Officer of the ferry corporation at that time. The numbers he used in the illustration is fictive.

Figure 1: The principal components making up the negative own (equity) capital in the balance sheet of December 1995:

Assets		Liabilities	
Fixed assets	100	Net capital	0/50 *)
Cash	50	Debt/reservations	150
SUM	150	SUM	150

*) Comments to Figure 1: In the CFO's illustration, the Net capital turned out to be 0 when it should have been at least 50 to avoid the illegal deficit.

When this situation emerges, the representative from the National Audit Office first relates it to the debt/reservations made by management; for early retirements/dismissals in addition to the requirement to pay flotation expenses to the State. The National Audit Office further argues that if management of the Ferry company had opted for another strategy, smaller reservations could have been made and this illegal situation would not have surfaced in the first place. Instead of going along with the critical remarks from the National Audit Office, and accept such a note in the annual report for 1995, management initiated negotiations to settle the issue. Instead of paying the Ministry the 1.2 billion DKK in flotation expenses at once, they proposed to delay the payment. This amount was not only entangled in a problematic association with the illegal deficit. Paying this amount now would produce other problematics as well; in terms of cash and liquidity, as well representing a major threat to the whole investment program. The Ministry urged them instead to borrow the money in a bank – otherwise the Ministry it self would end up with a deficit in their own account.

Management did not approve the idea of borrowing so much money. That would in effect mean to increase debt on the right side of the balance sheet, to reduce solidity, increase the cost of capital, and further on, decrease profitability. A previously quite normal and acceptable annual report, albeit with a rather low solidity¹¹, would be replaced with one that would run the risk of scaring any prospective investor off. When entering the bank for a confidential meeting, management failed to produce any convincing argument for a loan. Or as the CFO later explained “They did not wanted to lend us that kind of money- with a company facing these very uncertain conditions, with emerging bridges and competition, the costly retirements and all that.” Without any further delay, management returned back to the Ministry and told them the news (good or bad depending upon the view taken) that the company was entirely unable to convince the bank to give them this kind of loan, and that it would be impossible to pay the Ministry at this particular moment in time. Payment now, would in effect mean the end of any investment program, and most likely also the very end of the company itself.

The Ministry gave away and the controversy was settled for the moment, only to break out again at the end of the next year when the Ministry of transport, together with the Ministry of finance, urged the CEO to pay the 1.2 bill DKK. During December 1996, the CEO still refused to pay the amount. This prompted the former Minister of finance to write in the press that the management of the ferry company should keep in mind that they invested tax-payers’ money and therefore had to consider ROI. As it were, the MAC-frame was still in operation, at least among public officials. Also the Permanent secretary of State, Ministry of finance called upon the MAC-frame, the only difference was that the order of ROI now was supplemented with the order of the budget “At this time, I was talking with him [the CEO] over phone several times a day. I really had to give him a lecture in politics. My telephone was at the point of melting down.

However, he was brought to pay just before New Year's Eve. If he had not paid the money, the Ministry of finance would have had a problem with its own budget (Permanent secretary of State, Ministry of Finance). As the CEO of the ferry company later explained: "The Ministry of Finance forced me to pay them...", albeit 12 months later than first required. The Ministry of Finance also delimited the investment zeal of the chairman and the CEO as part of this ongoing negotiation over the conditions defining *the necessary economic discretion*. Was the order of the MAC- frame now finally restored? Was this the end of negotiations – of economic discretion?

Still, there were this other sensitive issue to negotiate, the reservation for the retirements and dismissals. In fact, the two issues became intimately connected and brought to existence through the National Audit Office's careful calculation of the problematic entity 'illegal negative own capital in the balance sheet'. In the calculations proposed by the new management team, the boundary of the calculation came to be drawn in a different way: company investments should no longer be burdened with costs for dismissals – at least not to the same degree as suggested by the former CEO's ROI calculations. Instead, the boundary of calculations became more confined in terms of the ferry corporation's own responsibility. Through these calculations a new re-distribution of costs and associated responsibilities emerges. After all, it was the owner that had decided to build these bridges – that now returned back as a sensitive issue regarding dismissals and associated costs. In addition, the company was a limited company, and should no longer carry the burden and all the responsibilities from the past, as if still being a subsidiary to the railway-corporation. Negotiations were initiated to share the costs for dismissal. What was considered as an unproblematic distribution of costs in the MAC-frame back then became problematized in the IPO-frame: Who was responsible, and who should carry the 800mill. DKK costs for early retirements and dismissals - the limited ferry

company, the railway corporation, the state and owner, or what? In the balance sheet of the ferry corporation, and most notably in the eyes of its readers, like the prospective private investors, it would certainly make a difference if those costs could be shared or not.

This time, management argued that the railway corporation - and the Ministry of transportation, should carry all costs. They ended up with a compromise in which the Ministry of transport agreed to take responsibility for the early retirement of 150 employees. In addition, the Ministry transferred as a non-cash contribution the ownership of harbour facilities at an estimated value of 250 mill. DKK. In effect, the management of the ferry corporation retrieved some 400 mill. DKK through these negotiations.

Epilogue: Instead of devising an IPO and go private on the stock market, the management team opted for yet another intermediary step. When the domestic Danish bridge opened in 1998, an international merger with one of its closest partners, the German state owned ferry-corporation DFO was announced. According to the CFO, the merger was conducted in order to build ‘critical mass’, more size, so as to become even more attractive in the eyes of prospective private investors. Besides, the stock market was not so interested at that particular moment in time, in a ferry company. The ferry corporation’s chairman became the new CEO of this new larger international enterprise. There were also public officials who suggested that this international move was an attempt to escape, perhaps even hide, what was destined to become red figures in the balance sheet in a near future. The CFO back then commented upon these considerations, by stating “ This [balance sheet issue] was not at all what was driving the process – as far as I can see. We offered and paid the state 500 mill. crowns in cash for making this merger come true.” As it were, the most recent annual reports turned out to be able to please the owner, the Minister of transportation. During the year’s 2002- 2003, the Danish part of the corporation

was back to the same performance in terms of passengers, vehicles, revenue, profit and number of employees as in 1999, that is, before the opening up of the two bridges.

Conclusions (preliminary)

The ROI calculation that both the former CEO and the parliament committee of transportation endorsed later became an issue subjected to negotiations by emerging concerned groups. A cold situation, maintained for a while with the help of ROI-calculations, turned into a rather hot one in which overflowings occurred. By locating and maintaining emerging bridges in the background, the MAC-ROI frame was no longer capable of containing the overflows that it participated in producing. Concerned groups became part of these overflowings. Far from containing these overflowings by installing more ROI, rationalization and control, they added to them. Re-equipping all concerned with an IPO-frame allowed for an entirely different situation to emerge: assigning a new central role to bridges, in a new more expansive set of calculations, overflowings could again be contained – for a while.

Weber (1921/1968) once suggested that the most formal rational accounting techniques presupposed a battle among the humans. With Callon (1998a, 1998b), we further suggest, that such calculative devices also participate in performing the economy – *together* with the humans, in ways that also might transform the latter. Also in this case, the transformation came to involve the actors' identities.

We have accounted for the emergence of discretionary acting management strategists, their investment program, maps and annual reports from those years. Equipped with an IPO in their hands, such identities were afforded. Yet, these humans and strategic actors were also to become slightly more disciplined – for a while. Equipped with ROI, a budget, and a calculation of illegal negative own capital in the balance sheet, the Ministry of transportation, together with the

Ministry of finance and the National Audit Office became the ‘force’ transforming discretionary acting strategic management subjects into object-like entities to be located in a more confined economic space. Not only identities, but also the economic conditions of the ferry corporation as well as the reconfiguration of its transportation market, became produced outcomes from these negotiations - involving humans, and diverse calculative tools and socio-technical devices. We consider such outcomes as organizational achievements.

Appendix: Map from the annual report 1997 (p.16-17), to be inserted about here

Rødby-Puttgarden
(Sammen med DFO)
M/F Prins Richard,
M/F Prinsesse Benedikte,
M/F Schleswig-Holstein (DFO) og
M/F Deutschland (DFO)

Gedser-Rostock
HSC Berlin Express og
M/F Kronprins Frederik

Helsingør-Helsingborg
(Sammen med Scandlines AB)
M/F Tycho Brahe,
M/F Hamlet og
M/F Aurora (Scandlines AB)

Helsingborg-København
M/F Trekroner Sejler på jernbane-
fragtruten mellem Københavns havn
og Helsingborg

København-Malmø
HSC Springaren,
HSC Løberen,
HSC Sælen og
HSC Søbjørnen

Kastrup-Malmø
HSC Kraka Viking og
HSC Silka Viking

Dragør-Limhamn
(Sammen med Scandlines AB)
HSC Felix og
M/F Scania

København-Landskrona
HSC Svalan



References (incomplete)

Abel-Kader, M.G. and Dugale, D. Investment in Advanced Manufacturing Technology. *Management Accounting Research*, Vol 9(3) 1998:261-284

Anthony, R.N., Dearden, J. , and Bedford, N.M. (1984) *Management Control Systems*. Homewood, Illinois: Richard D. Irwin, Inc.

Arwidi, O. And Yard, S. Kriterier för investeringsbedömning. Teori och Tillämpning. Lund: Doxa Ekonomi, 1986.

Bromwich, M. (1990). The case for strategic management accounting: the role of accounting information for strategy in competitive markets, *Accounting Organizations and Society*, Vol. 15, No. __, pp. 27-46.

Callon, Michel and Latour, Bruno (1981) Unscrewing the big Leviathan: How actors macro-structure reality and how sociologists help them to do so. In: Knorr-Cetina, K. and Cicourel A.V.(eds.), *Advances in Social Theory and Methodology. Toward an Integration of Micro- and Macro-Sociologies*. Boston: Routledge & Kegan Paul, 1981), 277-303.

Callon, M. (1998a) The Embeddedness of Economic Markets in Economics. In: M. Callon (ed.) *The Laws of the Markets*, Oxford: Blackwell Publishers/The Sociological Review: 1-57.

Callon, M. 1998b. An essay on framing and overflowing: economic externalities revisited by sociology. In: M. Callon (ed.) *The Laws of the Markets*, Oxford: Blackwell Publishers/The Sociological Review: 244-269.

Callon, M. (2003) The increasing involvement of concerned groups in R&D policies: What lessons for public powers? In: A. Geuna, A. Salter, W.E Steinmueller (eds.) *Science and Innovation. Rethinking the rationales for funding and governance*, Cheltenham, UK: Edward Elgar: 30-68

Callon, M., Méadel, C. and Rabeharisoa, V. (2002) The economy of qualities. *Economy and Society* Vol. 31 Nr. 2: 194-217. Callon. M (1998)

Czarniawska, Barbara (2000) Identity lost or identity found? In: Schultz, M. M. J. Hatch, M.J. and Larsen, M.H. (eds.) *The Expressive Organization: Linking Identity, Reputation, and the Corporate Brand* (New York: Oxford University Press, 2000), 271-283.

Fisher, I. *Elementary Principles of Economics*, New York 1913.

Gustavsson, Eva, and Czarniawska, Barbara (2004) Web Woman: The on-line construction of corporate and gender images. *Organization*, forthcoming.

Kaplan, R. and Atkinson, A. 1989. Advanced Management Accounting, 2nd ed., New Jersey, Prentice-Hall, Englewood Cliffs, Chapter 12, 473-521.

Dearden, J. (1969). The case against ROI control. *Harvard Business Review*, May.

King, P. (1974) Is the emphasis of capital budgeting theory misplaced? *Journal of Business Finance and Accounting*, 2.

Law, John (1994) *Organizing Modernity*. Oxford, Cambridge: Blackwell.

Lord, B. R. (1996) Strategic Management Accounting: the emperor's new clothes? *Management Accounting Research*, 7, pp. 347-366.

Lord, B. R. (1996) Strategic Management Accounting: the emperor's new clothes? *Management Accounting Research*, 7, pp. 347-366.

Miller, P. (1998). The Margins of Accounting. In M. Callon (ed.) *The Laws of the Market*. pp. 174-193

Mouritsen, Jan and Kreiner, Kristian (2003) Not for Profit – For Sale: Management Control in and of an Internet Start-Up Company. In: Bhimani, Alnoor (ed.) *Management accounting in the digital economy*. Oxford:Oxford University Press, pp. 169-184.

Simmonds, K. (1981). Strategic Management Accounting. *Management Accounting*, April.

Simons, R. (1987). Accounting control systems and business strategy: an empirical analysis. *Accounting, Organizations and Society*, Vol. 12, No. 4, pp. 357-374.

Weber, M. (1921/1968). *Economy and Society* (3 vols) (New York: Bedminster Press).

End notes

¹ For an example, see Samuelson and Nordhaus (2001) treatment of technology in situations of 'market failure'.

² This line of argument is also closely related to work associated with actor-network theory, e.g. Callon and Latour 1981 on macro-actors, Law 1994 on ordering processes.

³ In addition to the emerging bridges, there were also a few more issues surfacing. The European Union had announced a stop in tax-free sales on board ships. The Swedish ferry companies were improving their own operations from the south of Sweden to northern Germany. See also the map in appendix one. The map is an original version of one of those used in the headquarters and provides a very precise framing of the market situation at that point in time. These maps were also included in the annual reports for 1996 (p.40) and 1997 (pp.16-17).

⁴ The ROI –measure is part of a wider set of management control techniques for capital appraisal and quantitative evaluation of investment alternatives. Such techniques are obligatory part of curriculum in a bachelor degree in business administration and economics. They are also widely used in practice, the most frequent in use seems to be ROI - and payback measures (Abdel-Kader and Dugale, 1998, Arwidi and Yard, 1986). The basic idea behind the ROI-measure is to allow for a quantitative assessment of the value of a proposed investment in an asset, like the following: If the proposed investment can generate an increase in revenue that more than compensate for the capital cost of the investment (and hence generate a positive return/ROI), then the investment is acceptable. 'Acceptable' is the important word here since there are many different ways to define what is 'acceptable' returns: capital theory (as originally derived from economics, see Fisher, 1913) as well as in the more refined models for investment evaluation will provide different answers, depending upon the criteria used. For example, capital theory would derive the most relevant 'go-no go' criteria from the rent on the capital market, thus allowing for an estimation of cost of capital according to this externally derived rent criterion. Other models would also include internally derived criteria, such as corporate goals for returns on assets as well, and hence form a composite criterion for measuring and defining what is 'acceptable'.

⁵ At that time, the ferry company employed approximately 3000 people.

⁶ It should perhaps be mentioned that cost of early retirement was also regulated in the law.

⁷ Since long, research into management control (management accounting, financial- & capital budget management) has pointed out that purely quantitative capital appraisal techniques such as ROI may tend to disregard investments. Critique and warnings have been elevated against such a bias. In particular, it has been argued that capital appraisal techniques are very sensitive to the criteria defining the level of the rent to be used in calculating costs and returns from the investment. The higher the rent, the fewer investments will pass as acceptable, and otherwise strategic investments will never been made (e.g. Dearden 1969, King 1974, Simmonds 1981&1987, Arwidi and Yard 1981, Kaplan and Atkinson 1989, Bromwich 1990, Lord 1996).

⁸ After the election in 1993, the social democratic party replaced the right wing coalition government and obtained a majority position in the parliament.

⁹ Some of the 1.8 bill. DKK investments during 1996 were not completed until 1997. The amount can be compared with the 37.9 mil DKK in 1995 (mainly investments in maintenance of equipment) when the former management was still in place. The numbers of employees increased from 3022 (excluding the purchase of catering operations and tax-free shopping at the ferries) at the end of 1995 to 5273 in spring 1997. In the annual report from 1996, it is further explained, "When the adaptation is completed in the beginning of 1999, there will be some 2.700 positions left in the corporation, compared to today's figure of approximately 5300 (p.9).

¹⁰ In the annual report from 1996 a 584 mill. DKK reservation for dismissals was made for the next year. According to the annual report from 1997, 1000 employees were dismissed during this year. By now there were approximately 4300 employees left in the corporation. Further reductions were announced for 1998 and explained with reference to the emerging domestic bridge to be opened June 14 this year.

¹¹ The solidity at the end of 1995 was approximately 15%. According to the CFO of that time it was 50-60% below industry standard of this kind of capital-intensive operation and hardly a good situation to be in when asking a bank to provide a loan of this magnitude. Nor was such a loan anything but bad news in the eyes of prospective investors, he further explained.