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# 5

# Data Banking: Computing and Flexibility in Swiss Banks 1960–90

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## Shaky foundations

Daniel Bell's study 'The Coming of Post-Industrial Society', published in 1973, claimed to be 'a venture in social forecasting' (Bell 1973). Coming as it did on the eve of the most severe crisis of the global economy since World War II, Bell's book was certainly apropos. By the same token, Harvard's eminent sociologist could hardly have imagined how many global events would coincide with its appearance. 1973 was not only the year of the first oil price shock. It would also see the opening of the Chicago Securities Exchange and the end of the Bretton Woods system (Helleiner 1994; MacKenzie 2006).

If Bell had the temerity to peer into the future, few others did. Complicating matters was a breath in the air simultaneously of youthful spring and arctic winter, the precise effects of which were hard to foresee. For many industrial sites with their furnaces and assembly lines, the future had come to an untimely end, just as the adolescent financial 'industry' was revving up, backed by an unprecedented array of information technologies. Metaphorically speaking, the rules were about to change from the *modus operandi* of the industrial assembly line to the *ars combinatoria* of the computerized database. The western hemisphere had entered an era that could only be described as 'postindustrial' or, indeed, 'postmodern'.

It is not surprising then that, in1973, dealing with the future looked to be more of a challenge than in other years. In fact, the year was marked by more claims about imminent threats than had been seen during the preceding decades; and both confidence in existing rules and trust in established procedures were at an all-time low (Siegenthaler 1993). Arguing itself was ineffective, nobody trusted in arguments independently of what they looked like – confirming that the future was nebulous, to say the least, and would in any event be different to what anyone expected. Moreover there was no ground of common understanding on which to plant projections of the future (Luhmann 1976). Consequently people with little taste for escapism were left, like Denis Meadows and the Club of Rome, to calculate the obvious limits of growth – which amounted to contemplating the end of the world (Meadows 1972). Apart from heroic attempts like these at seeing clearly, the situation remained generally messy. For analytical minds like Jürgen Habermas', it could only be explained in terms of the legitimacy problems of late capitalism (Habermas 1973).

Indeed, 'legitimizing the system' turned out to be a substantial challenge, as much in philosophical seminars as in the realm of finance – where neither the previously inconceivable idea of trading options nor the introduction of floating exchange rates meant that everything solid was melting into air (MacDonald 1988). 1973 also saw the foundation of the Society for Worldwide Interbank Financial Telecommunication (SWIFT), which provided a fast and stable way to electronically transmit funds to any member bank and its respective customers (Scott et al. 2008).

Another apparent source of stability was identified by the *Harvard Business Review* in its September–October edition of 1973. In his boldly titled 'Computer Databases: The Future is Now', Richard L. Nolan, then an associate professor of business administration, addressed the 'confused and highly sceptical' top management whose members did not yet understand that the concept of databases was 'real, viable, and beneficial' (Nolan 1973; Kilgus 1971). As such, his article constituted not just a clarion call but also a comforting and reassuring gesture toward 'the system'.

In addition to this institutional and conceptual confidence building in the year of the big crisis (both economic and sociopolitical), two strands of technological development deserve mention. 1973 marked the start of Bob Kahn and Vinton Cerf's fruitful collaboration on a protocol for packet network interconnection (also known as TCP/IP), a robust piece of code that made it possible to connect computers with the highest degree of independence from local hardware and software specifications (Cerf and Kahn 1974). Around the same time, engineers at IBM's Research Laboratory in San Jose, California, began serious work on System R, a very early relational database system with an unprecedentedly flexible and powerful architecture (Astrahan et al. 1976; Chamberlin et al. 1981; Gugerli 2007).



At first blush, the aforementioned cluster of '1973 events' seems to be nothing more than an arbitrary selection of remarkable things that happened to occur that year. In the discussion that follows, I will assert that this cluster actually comprises a set of interdependent developments strongly related to the transformation of the financial sector in the last third of the twentieth century. To understand this transformation, we must consider together such ostensibly disparate factors as the limits of growth, the changes in regulatory regimes, the emergence of new markets, the role of prognostic tools, the arms race in information technology (IT), the shifts in corporate governance and finally the implementation of new enterprise planning and controlling instruments. Furthermore we must relate global developments to the ruptures and adjustments that occurred under very local conditions. Indeed, changes in the global financial system might be better understood as the consequence of local events, rather than the other way around.

Despite the extreme difficulty of accessing archival material, I wish to illustrate my claim with a set of observations concerning three major banks in Switzerland: Credit Suisse, the Union Bank of Switzerland (UBS) and the Swiss Bank Corporation (SBC). All three institutions were embedded in a national or even local economy, while each of them can also be considered to be a multinational or even global player. Based on published material primarily originating from Credit Suisse and, where necessary, supplemented with reports from UBS and SBC, I will argue that the changes these banks underwent in the wake of the 1970s were much more linked to their own structural developments than to the end of the Bretton Woods system. The forces that drove the increased flexibility in governance of these banks are to be found more in the growth-inhibiting shortcomings of their corporate surveillance techniques than in the new flexibilities required (and offered) by the international financial markets after 1973.

## Introducing the computer

The buzzword 'flexibility' certainly played an important role in the last third of the twentieth century. It stands for a kind of orientation that permeated all fields of practice and thinking. The 'redesign' of social relations led to new modes of communication. Similarly, the programmes that enterprises and societies had hitherto developed for themselves were changing. The organization of production, supply, retail, work and financing in the corporate world underwent a deep transformation. On the structural level of industrial enterprises, increased flexibility is evident in the decision of vertically integrated companies to exploit the outsourcing strategies of the new 'project capitalism', and in the replacement of planning and control by change management (Boltanski and Chiapello 2007).

The trend away from serial fabrication to lean production and from factory discipline to flexible working hours went hand in hand with a departure from a world of workers and employees to the realm of human capital that could be invested in, methodologically analysed and freely allocated according to the actual needs of the enterprise. Consequently professional vocation gave way to lifelong learning and self-management (Becker 1964; Piore and Sabel 1984; Neitzert 1996; Bröckling et al. 2007).

The society of the era of flexibility gradually replaced social norms with normal range, while its mode of communication toggled from hierarchical to distributed networks, from continuous flow to packet switching, from the strong coupling of synchronicity to the loose coupling of asynchronous communication. Even databases became more flexible when relational ones replaced procedural architectures. Instead of subscribing to planning, command and production, the era of flexibility followed a programme of recombination, heterogeneity and patchwork.

A traditional Swiss bank used to operate under strong political protection in a highly cartelistic environment. It could profit from stable agreements between competitors on fees and interests, and it offered a limited set of services either to a community of wealthy private customers, or a class of modest customers who tended to have one savings account and a small and homogeneous bond account. The conventional Swiss bank was one that could easily deal with its very tame community of shareholders (Swary and Topf 1992: 11–50). For such a bank, dominated by routine, the postmodern programme of recombination, heterogeneity and patchwork presented a rather hostile environment and a substantial challenge. How and why did the banks embrace a more flexible form of resource allocation? How did they manage to not only increase the number of their products and customers but also the possibilities of combining them? (Regini 1999: 3; Baethge et al. 1999: 7). How, even in retail banking, did they develop relatively flexible portfolio management for every single customer? How did they find and adopt new forms of governance and corporate structures that could handle this strategy of combinatorial growth?

The obvious, immediate, and yet misleading answer to this question is: banks introduced computers. Though empirically watertight (see Beccalli 2007: 195–202), this answer carries three caveats. First, a bank is not a bank. It is not precisely clear which type of banks introduced computers. Were they the formerly powerful credit factories that needed to speed up operation of their assembly lines? Were they the product-oriented, centralized banks of the 1960s? Or were they the banks with a variety of profit centres and customer-oriented governance? Second, the meaning of 'introduction of computers' is elusive. Could it be that banks were introduced to computing and not the other way around? Simply buying a machine could not have been the end of the story. Many procedures had to be adapted to the technology to make the technology adoptable (Winter 1974: 205). Which leads to the third caveat: computers are not computers. The advantages they promised, the possibilities they offered, the problems they caused and the surprises they engendered probably changed and multiplied far more rapidly than anybody could have predicted.

That was only the beginning of uncertainty, especially for early adopters of computers. Back in the 1960s, the machine that might have been recommended to a company was not the computer it would actually order; and the one that eventually showed up on the doorstep was already intended to serve a somewhat different purpose – maybe a task that not even the 'next-generation' hardware or software replacement would be able to achieve. Furthermore a computer was always pointing simultaneously towards its provider's and its user's goals (i.e. most probably in different directions). If these goals had anything in common, it was most likely their near-term outlook.

To round out these caveats, one might add a paradox: the time-consuming acceleration effect of computers. To be sure, computers were always linked with speed, change and the new possibilities of the imminent future (Luhmann 1966; Hausammann 2008). But no computer ever arrived as a ready-to-go machine, even if its processor was airborne (see Figure 5.1).

The paradox of time-consuming acceleration does not imply that it was a mistake to associate computers with unprecedented speed and calculating power. Computers were cutting-edge technology, and they did promise to magically transform any kind of administrative task. Yet they also stood for a technology that never quite did what it promised, was unbelievably expensive and required scores of additional personnel and well-trained specialists. For a bank, a computer was a bit of a gamble (Zetti 2009).

Banks were generally secure places for storing and transferring money, and banking was about mediating risks and keeping track of every single transaction that happened within a bank's fortified walls.

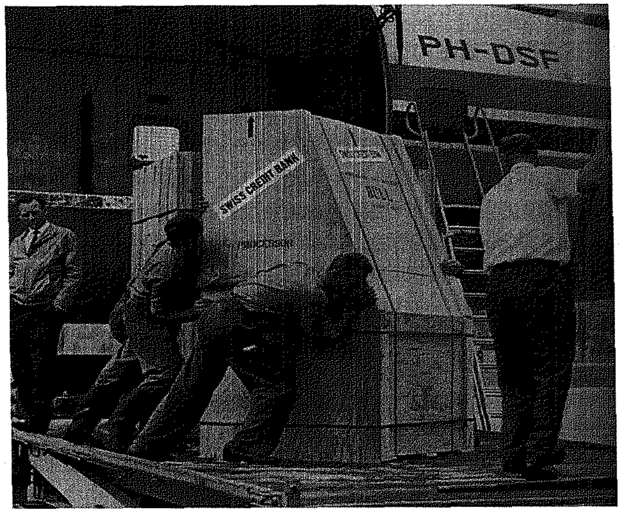


*Figure 5.1* Labour pains in delivering a Bull Gamma 30 digital processor for the 'Swiss Credit Bank' in 1962
*Source*: Credit Suisse, Historical Archives.

Consequently the computer's dynamic culture and the mixed menu it offered of powerful calculation, new ways of doing things and tiresome implementation represented quite a challenge, if not a threat. In other words there were good reasons for banks to be technologically and organizationally conservative. Back in the 1960s bankers took pains to ensure that their computers were almost exclusively associated – both semantically and pragmatically – with the values of power and speed. Computers would apply industrial strength to bureaucracy, eventually setting up an assembly line for transposing data, calculating numbers and processing preliminary steps for decisions (UBS 1965: 16–17; Bonhage 2007: 102; Gugerli 2009). It was, for instance, a 'modern and powerful data processing facility' that was purchased from Bull to process Credit Suisse's routine administrative jobs: 'For several months now (i.e. 1963, DG), among other tasks, the Bull Gamma 30 has assumed the daily processing of customer accounts and also regularly handles closing operations and the various reports associated with that' (CS quoted in Bonhage 2007: 98).

Banks were buying computers around the same time as large retail business firms, the post office and some branches of public administration. Yet they were no technological risk takers. On the contrary: the idea



was that computers would simply fill in for conventional calculators and tabulating machines, not that they would take aim at the structure of a bank's governance. As a matter of fact, however, there was a widespread suspicion already in the 1960s that introducing computers would bring about fundamental changes to the administration and governance of any enterprise. Some business administration journals trumpeted that computer-based 'management information systems' with hitherto unknown analytical possibilities would be available in the very near future (Haigh 2006). This was disturbing news for a business whose main assets were stability and security rather than change and flexibility. At the very least, the technology bore careful watching (Kilgus 1971).

It is therefore revealing to read three to four decades' worth of the banks' annual reports, paying special attention to the changing manner in which computers are presented. Annual reports are routine self-descriptions; they justify what *has* been done and they try to explain to their readers (mostly competitors, shareholders and clients) what *should* be done in the next few months. In other words, annual reports are a bank's highly ritualized public promise either to continue or to improve last year's performance. They form a communicative space into which new technologies such as computers must be integrated. As such, they constitute a category of text that helped to usher computers into their bank-specific role. The annual report had to endow a computer with the qualities it would need to serve a bank's purposes.

## Growing pains

The discursive setting into which computers were introduced in the 1960s was still a 'context' in which marginal costs of growth were skyrocketing and limits of growth could only be ignored thanks to the overall economic boom. Banks were still extending their networks of branches, and restructuring was hardly fodder for discussion. 'Do more of the same, even if you don't earn more' was the operating mantra. It fell to the annual reports of all major Swiss banks to point out the steep growth of branches. These reports invariably complained about the increased costs – one of the consequences of the banks' dogged hunt for more customer funds up to 1974, when Credit Suisse, UBS and SBC agreed to coordinate openings of new branches to reduce operative costs CS (1974: 35). Because employees' wages were soaring and qualified personnel were difficult to find, additional customer funds could only be captured through new branches, with concomitant infrastructural costs (see Figures 5.2 and 5.3). It was not hard to conclude from the annual reports that there was ample room and need for rationalization.

One of the most prominent advisers of the Swiss banking sector, Ernst Kilgus, noted an aggregated growth in total assets of Swiss banks from 105 to 170 billion Swiss francs between 1966 and 1969 without any structural changes and under strong pressure from the labour markets (Kilgus 1971). Given this context it was important to present computers as machines that could enhance administrative procedures and to justify them as an investment in greater productivity. During the 1960s,

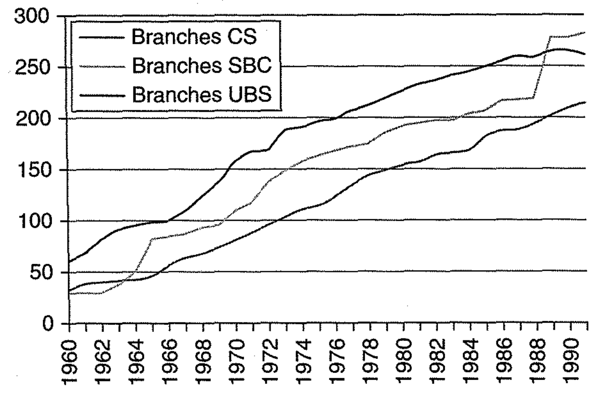


*Figure 5.2* Growth of branches 1960–91: Credit Suisse, Union Bank of Switzerland (UBS), Swiss Bank Corporation (SBC)

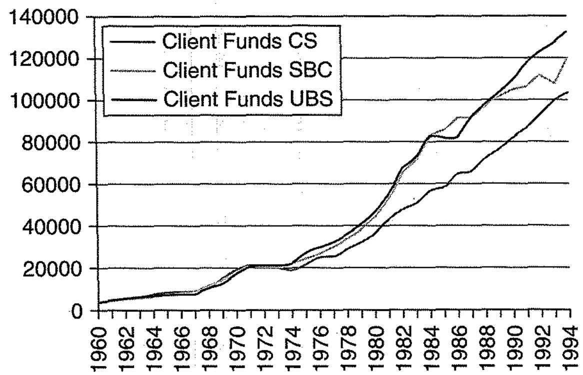


*Figure 5.3* Growth of client funds 1960–94: Credit Suisse, UBS, SBC



the banks mainly subscribed to this view of the computer. In the realm of Swiss banking, as in public administration and retail business in Switzerland, the computer was perceived as the most important means of rationalization and an excellent instrument for coping with growth (Girschik 2002, 2005, 2006, 2009; Gugerli 2002, 2009; Zetti 2006b; Hausammann 2008; Illi 2008).

In the years after the first processor was transported by air to Credit Suisse, the bank again reported the opening of 'a new calculating centre'. Every word of this text was carefully chosen. The new installation was said to be located 'at headquarters' in Zurich and equipped with a 'state-of-the-art' computer. After having closely linked power, control, and advanced instrumentation of both, the report went on to tell its readers that the new calculating centre was launched at the end of the 1967. In other words, it had opened just before the critical year-end and thus in time to be featured in the annual report's text and graphic design, adorning the inside cover as the very latest on the technological frontier (CS 1967: 24).

The new machine was described as having a 'large, extended memory' and a 'powerful magnetic tape station', which, the bank was proud to declare, made the centre 'unique among its kind for banking in Switzerland'. Shifting the focus to the familiar, the text then described the computer as being used to 'automate accounting of stocks and bonds', and to 'improve services for a broad range of private banking customers'. Immediately after announcing that other parts of the bank had successfully streamlined, the annual report made the point that it was still extremely difficult to find qualified employees. Thus the report's readers could not doubt that the computer was very much needed by the bank (CS 1967: 24; CS 1969: 24).

The discursive juxtaposition of rationalization, computing, power, control, personnel and growth remained stable over the next few years. Although existing equipment usually fell short of expectations and often choked on the massive chunks of data fed it by banks, the goal of rationalization remained the North Star, a more or less reliable policy a bank could pursue by acquiring computers, tweaking procedures and adapting conventional transactions to data processing and to the available calculating power (and vice versa) (Neukom 2004: 57). Indeed, in 1972, Credit Suisse invoked its 'strategy to fight against shortage of personnel through the extension of the calculating infrastructure' to justify the purchase and installation (in Zurich) of two brand new IBM 370 mainframes in addition to its existing Bull and IBM computers (CS 1972: 34; Zetti 2006a).

At this point, alert readers of the annual reports might have noticed a change in the narrative. It was probably the first time that machines were given names in such a publication. This is especially noteworthy considering that, back in 1967, the annual report totally ignored the switch from Bull to IBM as the bank's main hardware provider. In 1972, however, computers simultaneously acquired monikers and lost their previous, clearly identified raison d'être. The new mainframes were no longer intended to perform specific automation tasks (like accounting of stocks and bonds) nor simply to replace personnel. The purpose or primary role of this additional calculating power was now presented and defined in very general terms. The machines would serve as 'a platform for very complex database systems' that were 'currently being built up' at the bank and whose entries should become 'electronically readable' on 'terminals' residing on desktops. Computers would become 'the basis for the complete automation of large areas of our bank'.[1]

This was obviously a new and far more radical approach. It was also the first time the bank used the term 'database system' in an annual report, although it dropped the subject immediately after mentioning the vision of computer-based automation for the whole bank. There was certainly more comfort in explaining the familiar topics of the professional training programme for employees and the bank's improved infrastructure for sports (CS 1973: 31; Jung 2000: 343–4). No doubt the qualifying epithet 'very complex' was appropriate and necessary for such an important milestone. However 'very complex' might also have been meant to foreshadow the next year's report, when 'floating exchange rates, measures against foreign capital, governmental interventions to curb the boom, and a bearish stock market' showed that the only thing the bank could actually count on was its programme for computerizing the entire enterprise, 'including all branches'. The first step of this programme consisted of introducing cost-centre accounting (CS 1973: 31; Jung 2000: 343–4). The application of massive computing power was presented as a way to find certain stability amid the alarming signs of a deep economic crisis. After all, very complex systems should be able to cope with very complex situations!

## Database culture and restructuring

Until the middle of the 1970s, centralized mainframe computers served the ends of automation and rationalization. Now they began to take over the accounting of entire banks, spurring them to migrate online.[2] Simultaneously the bank-specific version of a database culture



gradually suffused the thinking and planning of top management (CS 1977: 47; SKA 1978). With the extensive growth of the branch network and the number of clients, the managers at headquarters had the increased burden and challenge of controlling branch activities. Computer-based data management seemed a promising way of analysing the enterprise across its primary organizational boundaries and therefore realigning the branches' centripetal activities.

In 1975 Credit Suisse launched a major survey of its customers (CS 1975: 40) and simultaneously produced a 'white book' presenting various scenarios of the bank's future organizational development in a kind of free association.[3] What we can derive from the annual reports and the bank's carefully controlled historiography is that this marked the dawn of computer-based flexibility, both in analytical and in organizational terms. Credit Suisse started to develop tools that gave the bank greater insight into its own operations and also enabled it to develop a new sensitivity to its clients (Jung 2000: 343–4). These words have a nice ring to them. But replacing 'insights in operations' with 'control' and 'client sensitivity' with 'wealth and income-dependent classification of clients' might give one a more adequate impression of the bank's reorganization strategies in the late 1970s and early 1980s. In any case, both strategies required a lot of computing power. The goals and achievements in terms of automation and rationalization in the late 1960s and early 1970s were now supplemented by a set of sophisticated controlling tools and survey techniques.

The trend toward increased self-awareness on the part of the bank was clearly accelerated in 1977 when the criminal capital acquisition strategy of a single Credit Suisse branch caused a speculative loss of more than 2 billion Swiss francs, with severe consequences for the bank's leadership. It is noteworthy that attempts at restructuring the bank with the help of additional computing power for cutting-edge database technology had started before the 'Chiasso case' became a widely discussed scandal in the press and in the federal parliament (Mabillard and Weck 1977). It is also clear that 'Chiasso' underscored the necessity of improving management procedures and developing a culture of controls consistent with the accounting and governance rules of contemporary business administration (Kilgus 1968, 1971, 1982).

Back in 1972 when the term 'database' cropped up for the first time in the bank's annual report, it was still quite difficult to figure out how to introduce a database system in a way that made any sense. 'Database' could mean many things, especially 'very complex' ones. Furthermore, 'Building a Base for a Data Base,' as the title of an article in *Datamation* ran, probably reflected a 'management perspective' more than a feasible engineering scenario (Cuozzo and Kurtz 1973; Balderston et al. 1977). Nevertheless the IT specialists at Credit Suisse must have known that the field of database technology was on the move, and not only for its advocates in the schools for business administration. By 1973 the first-generation, brute-force approach to searching and batch-processing hierarchically structured data was reaching its limits.[4] Managers and IT specialists were mulling over the possibilities for enhancing the programmer's freedom to navigate in a given data set (Bachman 1973).

One attractive solution to these problems, at least conceptually, was proposed by a British mathematician working at the IBM Research Laboratory in San Jose. Edgar F. Codd's pathbreaking design for a new database architecture received widespread attention and galvanized the community of database technicians (Codd 1970). Sometime around 1973 the first reports of the development of System R, IBM's attempt to develop a working relational database, must have reached the well-informed circles of the IT community dealing with data management in banks, especially in view of close collaborations like the one between Credit Suisse and IBM engineers. Even sceptics among the bank's and the provider's programmers would have been acquainted with current debates on database management systems and data recombination (Date and Codd 1975).

Why was the new database concept interesting for bankers? First, Codd and his followers aimed to put the relational database on a mathematically sound footing. In addition they were adamant that future database management systems should be characterized by a series of crucial elements chief among which were 'simplicity, symmetry, data independence, and semantic completeness' (Astrahan and Chamberlin 1975: 580). Above all, in order to guarantee both user and data independence, 'future users of large data banks must be protected from having to know how the data is organized in the machine (the internal representation)' (Codd 1970: 377).

A generalized 'search and query language' would ensure that queries run on a specific database wouldn't require the service of a professional programmer. Codd believed that databases should be set up in such a way that normal users (e.g. managers and housewives) could search them easily: 'The relational model is a particularly suitable structure for the truly casual user (i.e. a non-technical person who merely wishes to interrogate the database, for example a housewife who wants to make enquiries about this week's best buys at the supermarket).' The claim was immediately turned to radical prophecy: 'In the not too distant



future the majority of computer users will probably be at this level.' (Date and Codd 1975: 95). Casual users, especially if they were managers, might want to ask a database questions that had never been asked before and had not been foreseen by any programmer (Gugerli 2007).

The possibility of recombining datasets using a unique primary key enabled the combination of properly formatted data. What had previously been separate blocks of data – gathered in different formats, organized in different files, managed by different departments and sometimes even stored on different media – would now become accessible simply by dint of the user's questions and analytical intentions. One hypothetical task that developers employed to illustrate the combinatorial power of a relational database management system was, 'Fire everybody on the first floor!' (Stonebraker et al. 1976).

Actually, this kind of managerial task can only be solved if there is a way to combine human resource department data with that from buildings and grounds. What permitted the ad hoc crossing of organizational limits was the relational database's formal consistency and data independence. Asking new questions of existing chunks of information made possible new analytical opportunities, no matter what the original purpose of the data. Such a scenario was clearly heaven on earth to any manager in search of information. It was also the axis on which consulting activity would eventually turn.

In the early 1970s, when System R and other relational databank systems were developed, this potential was still fairly distant. And it remained so until the early 1980s, when the first commercial applications of relational database management systems (such as Oracle and DB2) became available on the software market (Symonds and Ellison 2003; Date 1984).[5] The informational crossing of an organization's divisions, though, was one of the most promising strategies since the 1970s and was applied more and more in Swiss banks in the 1980s. In 1982 – under the close guidance of McKinsey & Company – Credit Suisse introduced a programme of cost-centre accounting, and a year later developed a new cost control strategy for the entire bank. Between 1983 and 1986, an overhead-value analysis that was also suggested by McKinsey offered an unprecedented, deep insight into the bank's economy. It revealed, for instance, substantial, systematic losses in the bank's retail business (CS 1983: 27; SBC 1984: 62). Simultaneously, a programme running between 1983 and 1987 analysed customer relations and profitability (Jung 2000: 345–6).

By the middle of the 1980s the overhead-value analysis, and the customer relations and profitability analysis, had paved the way for a veritable management information system called FISKA. Set up in 1987, it provided the kind of computer-based administration of the bank's transactions that most business administrators had been dreaming of for two decades (Winter 1974: 207). The manager's power to recombine existing data along with the crossing of organizational boundaries had become a major management tool and principle. What's more, the technological implementation of the relational database, that is, its programmes and procedures, could be presented in the bank's annual report.

## Customizing the computer

In 1988, more than a quarter of a century after the first Bull 30 processor was delivered, Credit Suisse's annual report contained a fairly extensive section titled 'Production and Informatics'. The goal of an annual report is generally to maintain order; this particular report simply celebrated it. 1988 turned out to be the year in which the computer 'program' followed a clearly structured narrative. First of all, computers were not just computers anymore. They served different purposes and therefore could be distinguished. For example 'mainframe computers with database systems' served 'the efficient processing of transactions', whereas so-called information and management systems mainly ran on 'personal computers'. By the end of 1988, the bank had well over 11,000, that is, 80 per cent of its individual work spaces equipped either with terminals to mainframe systems or with one of Credit Suisse's 2500 personal computers. Conventional postal services were concentrated in a single factory that allowed 'rational and flexible' compilation and distribution of customer reports, while half of the personnel were using electronic mail for internal communications. Roughly ten per cent of all employees had informatics-related jobs; many of them had even been trained at the bank's own school for informatics (CS 1988: 43).

The following year, there was not much to add to this clear-cut picture, except for an obvious emphasis on 'networks'. These had been linking the different systems and led to a 'high level of integration' of the entire bank's IT. Of course many projects were still ongoing,[6] but the document clearly intended to report 'business as usual': the development of a foreign-exchange trade system, the further diffusion of electronic office applications, the management and control of credit limits and support for 'production', that is, interactions with customers. Was this (again) a hint to the attentive reader? The report noted, without elaboration, that the bank was going to re-conceptualize 'the basic systems' and the 'customer master data files' (CS 1989: 35).



As a matter of fact, developing IT-based interactions with customers was one of the most dynamic areas of computing at the bank in the late 1980s (Swary and Topf 1992; Rogge 1997: 267–302). It went hand in hand with an enterprise structure commonly referred to as 'customer-oriented' or 'customer-segmentation strategy' (Baethge et al. 1999: 8). This was actually a restructuring programme: small branches at the periphery with reduced autonomy under close computer-based controlling, a few big and efficient production centres and finally a general adjusting of all services to the customers' demands. Credit Suisse reported in 1989: 'We believe clear customer segmentation will result in a better cost-benefit ratio of our banking services, both for our customers and for the bank' (CS 1989: 22).

The services and the tariff policies introduced by the bank in the second half of the 1980s were actually designed to get rid of the 70 per cent of customers who were administratively costly and produced no returns for the bank. The idea was somehow to make them go away without losing their funds. Extending the ATM network[7] and introducing an early form of telebanking called Videotex in 1986 that used the customer's TV set and telephone line (Campbell and Hilary 1981; Freiburghaus 1983; Knecht 1984; Gfeller 1993; Kyrish 1996; Lütolf 2002), as well as a 24-hour telephone service in 1993, helped to discourage walk-in customers – with concomitant savings in terms of employees' attention and work time. It was much more attractive to have clients either telephone a specialized, massively equipped call centre or fill in all the necessary forms for a transaction on their own screen without bothering anybody (SBC 1983: 64).

## Conclusion

All these services were based on reliable database systems and advanced network connections operating in real time. The customer-oriented bank of the late twentieth century was a flexible, database-oriented enterprise structured according to the requirements and possibilities of computing. In the words of Baethge: 'The development of databases of customer's relationships with the bank permitted the banks to develop cross-selling strategies and to expand their business activities. Banks offered a wider range of products and services following deregulation, and technology helped them handle the growing volume of transactions more efficiently' (Baethge et al. 1999: 7). However it took almost three decades to introduce computers into a form of business that is best described as 'data banking'. During this period Swiss banks not only replaced their transaction-based organizational model with a technology-supported sales and service system but they also abandoned their traditional growth strategy. Instead of continuing to build up a network of branches that acted as local delegates for headquarters and offered a full palette of services, Swiss banks opted for a customer-segmentation strategy that, on the one hand, permitted group-specific, computer-based economies of scale and, on the other, flexible portfolio management.

It is worth noting that, owing to their implementation only in the late 1980s, changes in the domestic regulatory regimes of the financial sector at large had little influence on banks. Nevertheless, beginning in the 1960s, structural changes did take place that gradually transformed the banking business. The early but slow adoption of the computer as a means for automated and streamlined data processing in the 1960s gave way to a more fundamental role of computers in banking. Around 1973, that is, just before the big economic crisis hit, computers and the tools beloved of business-administration-oriented consultants (cost analysis, profitability studies) became the most important instruments in restructuring the banking business overall, and indeed every bank's organizational mode.

This led to a veritable arms race in IT. Databank technology, as well as online and even real-time banking joined with early attempts at using IT to enable retail banking customers' access to their assets. Simultaneously, the implementation of new enterprise planning and controlling instruments led to profound shifts in corporate governance and paved the way for the big mergers in banking of the roaring 1990s.

## Notes

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1. CS (1972: 34): 'Die auf diesen Anlagen im Aufbau begriffenen sehr komplexen Datenbanksysteme, die bis an die einzelnen Arbeitsplätze über Bildschirme elektronisch lesbar sein werden, bilden die Basis für eine umfassende Automation weiter Bereiche unseres Bankbetriebes.' SBC bought its IBM 370/165 roughly at the same time and planned to change its 'program' from a data factory to a more complex information system SBC (1971: 28), while the UBS dreamed of an integrated 'Union Bank Information System Concept': see UBS (1973: 25).



2. CS (1977: 46). In 1983 the bank reported that 'almost all bank-specific transactions are now carried out "on-line in real time"' (CS 1983: 28). On 'the terminal' as a symbol and an instrument of real-time banking, see SBC (1976: 46); see also SBC (1977: 54).
3. Unfortunately, to date, the book belongs to the confidential archives of Credit Suisse and cannot be consulted, allegedly to protect individual rights of the contributors.
4. This is also the case for computer centres at universities. See Gugerli et al. (2005: 347–61).
5. In 1990 the relational database model was mentioned for the first time in SBC (1990: 29).
6. In 1987, Credit Suisse reported 317 ongoing projects in informatics.
7. Between 1980 and 1984 the number of machines grew from 211 to 1397 (Swary and Topf 1992: 12).

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*Note*: Annual reports by Credit Suisse (CS), the Swiss Bank Corporation (SBC), and the Union Bank of Switzerland (UBS) are quoted in the following formats: CS (Year), SBC (Year), UBS (Year).

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