trust that others will do as they have promised, that they are good at their job, or that they will support you rather than find ways to benefit at your expense. It clearly has a reciprocal character, with evidence of trustworthy behavior by one person encouraging similar behavior by those with whom they interact. Trust may exist between colleagues of the same level, becoming an important component of effective teamwork, between managers and the people they manage, or between staff in general and the leadership of the organization.[16] Trust will often be changed by sporadic incidents, rather than by continuous conditions. Each time a person does something they promised that is not trivial or does a noticeably good job on some important task, others' trust in them will increase.

Sporadic events also drive outflows, both for positive and negative perceptions. An apologetic phone call from the CEO of a supplier that has let us down is an incident intended to reset our perception of their poor service. Similarly, any time a colleague fails to deliver on something important they promised to do is a sporadic incident that drops our trust in them.

So important are such sporadic factors that many organizations try to establish norms to make sure that positive states of mind are built and sustained, and negative ones prevented from arising. One train operator, for example, faced with frequent minor delays on its services noticed that these were repeating because an initial delay to one service disrupted those that followed. To prevent this escalation, they instituted a policy of cancelling altogether any service that was late enough to disrupt others, taking the view that a single substantial disappointment to a minority of travelers was preferable to a large number of small disappointments to many that might be experienced repeatedly over successive days and weeks. Some organizations go so far as to build required behaviors into their corporate "values," setting out what is expected in the way staff relate to each other, to customers and to other third parties. When successfully embedded, there is no danger of trust between colleagues falling from a high level, for example, because it is just not done to let others down.[17]

INFORMATION-BASED INTANGIBLE RESOURCES

The inclusion of data, knowledge, and so on in the strategic architecture explaining firm performance reflects the existence of two classes of entity—the "material" factors that have been dealt with as tangible resources, and various "informational" factors that also can be collected, lost, stored and used.

The simplest informational factor is just data—specific pieces of information about something of importance. This can be illustrated by extending the example

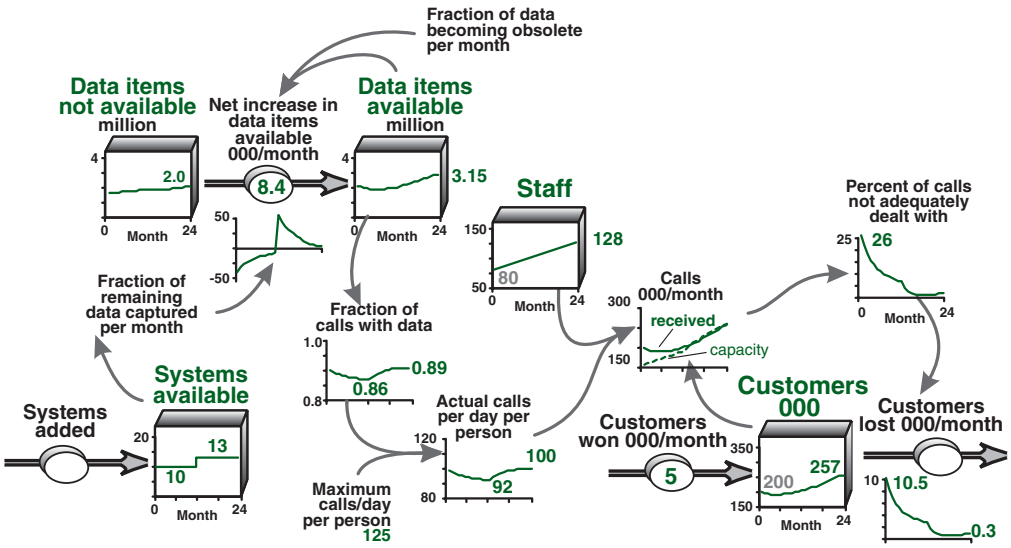

Figure 9.9: Adding systems to capture data allows growth in call center activity.

from Chapter 5 concerning the performance of a call center providing customer service. At that point, we were concerned with whether staff in that call center had the skills required to serve customers well. Now we will look at the importance of having the *data* needed to do so (see Figure 9.9).

The call center started with 200 000 customers making on average one call per month. The 80 staff could each take 125 calls per day, or 2 500 per month if fully trained, so were just able to handle all the calls received. However, in order to respond to customers' enquiries, these staff need information about customers and their activity, that is, data. Some of that data is long-lived, such as name, address and other personal details, whilst other data is transitory, such as the customer's recent transactions or enquiries. It used to require much effort and cost to collect and maintain such data, although these have been radically reduced by advances in information technology over the last couple of decades.

Assume in this case that 20 items of data are required in order to answer every enquiry customers might raise, but only 60 % of that data is actually available. This is sufficient to deal with nearly 90 % of customer enquiries. Lacking all the necessary data increases the time that staff have to spend on the average enquiry, so instead of being able to respond to 125 calls per month, each person can only answer 99. The call center therefore has too few staff, simply because of the lack of data. Over

a quarter of calls go unanswered, causing the loss of about 5 % of customers each month. (This example does not include the notion of accumulating annoyance discussed above.)

As each month passes, more of the call center's data becomes obsolete—old transactions become irrelevant to current enquiries, customers' details change without being updated, and so on. The company therefore continues to spend some $20 000 per month updating and maintaining the data. However, this is not sufficient to keep even the limited data up to date, so this fraction of adequate data continues to decline, reducing staff productivity still more.

By about month 12, the system comes into balance, but only through the same kind of bad mechanism we saw earlier for the computer service firm—losing customers brings pressure back to a level that the center's capacity can deal with. This is helped by the continuing increase in staff numbers, so although each person can only respond to 92 calls per day, there are by this time enough staff to manage all the incoming calls.

Realizing from the start that the lack of data is damaging customer service and holding back staff productivity, the call center decides to invest in improved systems for data collection. This takes the first 12 months to complete, but when those systems come online, the flow of data items available swings strongly positive and the database starts to fill. Staff productivity rises strongly over months 12–18, so that the center's capacity is easily able to handle the larger number of calls from the increasing customer base. Note, incidentally, that the total quantity of data to be captured is itself rising in the later months, due to the growing number of customers.

(Online learning materials are available to support this example, see p.xxi.)

New systems can do more than merely improve the availability of data, of course. They can also automate business processes, and thus directly raise productivity. The call center could also have decided to invest in some further systems designed with that purpose in mind (Figure 9.10). These become available from month 18, and raise the maximum rate at which each person can deal with calls from 125 per hour to 140. Note, however, that the number they can actually handle still depends on the availability of customer data.

This situation illustrates a common issue in systems investment—interdependence between systems. This poses challenges for senior management trying to assess the value of IT investments.[18] In the call center case, there is clearly a business benefit of investing in data capture systems. There is also a benefit from investing in the call support systems. However, the benefit of both initiatives in combination is not a simple addition of the two. The investment in improved call-handling will be devalued if not accompanied by efforts to improve the availability of data,

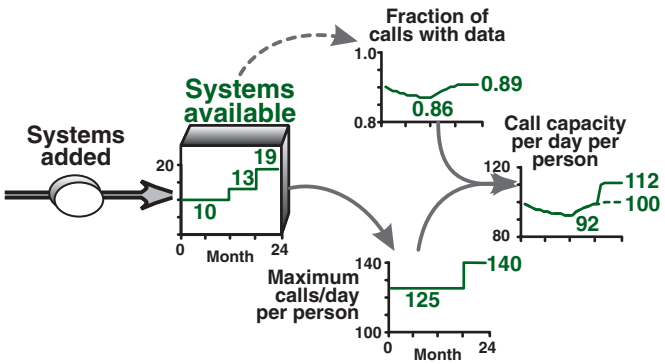

Figure 9.10: Systems investment also enables increase in staff productivity.

and more data will be of limited help if it still has to be used with slow, manual processes.

This interdependence amongst IT projects can make it meaningless to attempt to put a value on any single investment. The case above shows just two such projects in one isolated business department. Any substantial organization will at any time be pursuing a portfolio of investments, for multiple purposes in multiple functions. Given this extensive impact, valuing the whole program is as complex as estimating the value of the organization's strategy. Further complexity arises from additional considerations:

- The contribution of information systems is taking place against a background of overall degradation. The call center case shows a simple mechanism for this decay, in the obsolescence of data. But decay arises for other reasons. The business processes that an IT system supports will change, so that the system's contribution becomes increasingly ineffective at supporting those processes. The organization's needs may increase in scope and complexity, so that an unchanging system again becomes less effective.
- Systems investments may help improve the organization's overall performance both by improving efficiency and increasing effectiveness, and any single project may contribute to each to some degree. These two contributions will operate on the firm's strategic architecture to deliver some mix of cost reduction and business growth.
- Systems investments are rarely just about data and the processing of that data. Often they involve significant changes to the business processes themselves, and changing or raising the skills of the people using them. A credit-scoring system

for a bank, for example, relieves executives of the need to be skilled at assessing a customer's risk. On the other hand, increasingly sophisticated advice-support systems for customer service staff may make it possible for them to handle a large fraction of enquiries that they would previously have needed to refer to others. This, however, will require those staff to be trained in understanding services that were previously provided by others.

Although a full examination of how systems investments contribute to improving business performance through time is beyond the scope of this book, the essence of the mechanisms is summarized in Figure 9.11. Any particular investment makes some contribution to improving skills, data, the systems themselves, or business processes, or to some mix of these. All of those intangible resources are undergoing decay, so investing nothing will ultimately undermine the business. If correctly prioritized and phased, the improved skills, data, systems and processes operate on the tangible resources of the organization's strategic architecture—customer retention, product development, staff productivity, capacity, etc.—to improve its performance. The mechanisms by which any individual initiative operates on the strategic architecture can be assessed by extending the principles illustrated in Figure 9.9 above, which will allow judgments to be made regarding the scale and make-up of the whole investment program.

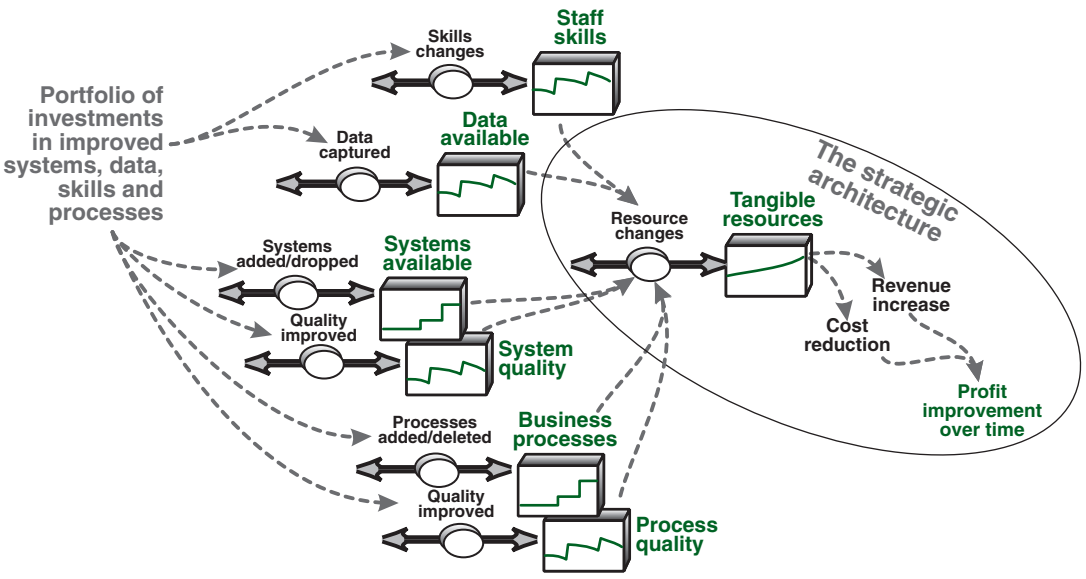

Figure 9.11: Overview of systems investments' impact on the strategic architecture and performance.