

PRELIMINARY DRAFT: NOT FOR ATTRIBUTION OR CITATION

This report is incomplete, the first part of a more ambitious analysis and is likely to be considerably revised before it is ready for full publication.

Embracing risk:

What we can learn from the INCIS experience

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Preface

Our report is a first cut at a work in progress. It should be read as a preliminary introduction to a much more extensive interpretation of the INCIS story that we hope to produce at a later date.

Although we have read most of what is in the public domain about INCIS, and have interviewed at length some of those who were involved, we cannot pretend to know what "really happened" because we weren't there. And even if we had been, there would have been countless, and often conflicting, versions of events to pay attention to. What we hope to have started with this document is an iterative process of research and writing in which we set out our own interpretation of the early stages of INCIS, and then ask those involved to confirm or disagree with our take on events. In turn, we will incorporate their reflections in our subsequent texts as we proceed through the analysis of the later stages of the project. The end result will not be the "true" version, but one that has been considered by those concerned an acceptable explanation of the circumstances in which INCIS occurred. We welcome, therefore, any and all comments from readers.

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Abstract

This report describes the initial phase of INCIS. INCIS (Integrated National Crime Information System) was a project undertaken by the New Zealand Police at the beginning of the 1990s with the object of designing and implementing a comprehensive communication network and set of information supports in order to strengthen the capacity of Police to offer an improved service to the public. Previous research in studying projects of this kind and scale indicate that they typically make the host organization vulnerable to major risks (Taylor, Groleau, Heaton & Van Every, 2001; Hopkins & Kessler, 2002). Our analysis of the INCIS case is an exploration of the source of these risks. We base our interpretation of the available documentation and interviews on a co-orientational theory of communication. We trace back the difficulties that INCIS encountered to problems of translation: linking the client organization and the vendor, but also characterizing the difficulties experienced by (and within) each in arriving at a clear definition of their intention. We argue that the frequently used strategy of avoiding risk by delegating responsibility to consultants or subordinates tends to enhance, not reduce, the risk. A better managerial approach is to embrace risk, and to accept the fact that adaptation to technological innovation implies learning at every level of the organization, including – perhaps especially - senior management. There are clear policy implications for the governance of projects involving technological innovation, with particular reference to the culture and systems of accountability characteristic of the public sector.

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The INCIS project in retrospect¹

The salient events that make up the INCIS story

Towards the end of the 1980s, the New Zealand Police were faced with the necessity of updating their central information/communication (ICT) facility.² For one thing, their existing central database technology, Wanganui Computer Systems (LES), known colloquially as the “Wanganui computer” (from the name of the town where it was originally located) was becoming obsolete. The facility dated from 1976, and was excellent for its time. It was, however, based on a hierarchical principle of data storage and access that had in the meantime been superseded by the more flexible and efficient relational database software. With no derivation in the system that prevented the entry of inaccurate information, and with error rates in excess of 16%, cleaning of the data was essential. Worse still, Wanganui had become unreasonably costly to maintain, development costs were high, it and represented a serious drain on the limited financial resources of Police.

Other factors were conspiring to impel Police toward a radical innovation in planning and operating its information/communication (ICT) base. New computer systems were

¹ This report was supported by a grant from the (New Zealand) Foundation for Research, Science, and Technology (contract number UOW X0016, Programme Title: The socio-Economic Impacts of ICT).

² There are a number of different conventions in use when it comes to refer to the kind of technology mix that INCIS represents: IT (Information Technology), or IS (Information Systems). We prefer the term ICT (for “Information-Communication Technology”), simply because the system is an integration of two technological components: one computer-based, for the storage and use of data, the other for the linking of components of a network through telecommunications facilities.

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going to be required to carry out the New Zealand Government reform of departmental accounting procedures and responsibilities, including those of Police and Justice.

Criminal intelligence services urgently needed more flexible and powerful tools to conduct their investigations. Moreover, given the widespread acceptance of PCs during the 1980s, it was evident that a more distributed facility was needed to support investigative practice in a wide variety of operations, as individual officers and stations equipped themselves with the new machines. The salience of this latter factor was further enhanced by the decision on the part of Police to adopt a community-focused strategy of policing. A community oriented philosophy, obviously, places great demands on networking, since officers are deployed in a more geographically dispersed fashion. Finally, there was a growing recognition that Police operations were suffocating in a blanket of forms to be filled out and reports to be submitted, and that this was affecting their capacity to provide an adequate service to the community – not to mention the ability of their corporate superiors to coordinate and control their activities. Action needed to be taken.

Accordingly, at the beginning of the 1990s, Police initiated a major review, to the end of coming up with a plan for renewal, that would culminate in the development of a single national information/communication system: INCIS (the Integrated National Crime Information System). A steering committee, chaired by the head of planning and finance as well as ICT, Don Gray, was set up. In line with the usual practice, an independent consulting firm, Price Waterhouse, was invited to delegate agents (Martin Carr and David Cittadini) to undertake a project review. Beginning in late 1991, assisted by one Police officer, Sergeant Burt and a clerk from Police Computer Services, the Project Team set about doing a scoping study, and in 1992 this led to a definition of “business requirements” (i.e., an estimation of actual Police needs for advanced ICT), soon to be followed by a “feasibility study.” At the end of 1992, the private sector was alerted to the intention of Police to implement a new system through the issuance of a formal Request for Information.

1993 was preoccupied with narrowing down the field of potential vendors sufficiently to be able to identify a “preferred supplier.” By the end of the year, IBM, as part of a

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consortium bidder with GCS (Government Computing Services), was notified that it had been chosen as the main developer, and was invited to submit a formal proposal. In parallel with the choice of a supplier, the Project Team had continued its work on a “business case,” now under the leadership of Inspector Crewdson, who had been seconded to the team on his return from a year as a Harkness fellow at Harvard, and who would become eventually the project leader. In May and June of 1994, IBM responded by submitting a proposal, and after several rounds of intense (and sometimes just plain tense) negotiations, eventually a contract was signed between Police and IBM at the end of October, with the approbation of the Cabinet and Treasury. The estimated cost of the project was just under \$100 million NZ, on a special government allocation. The entire system, it was stipulated in the contract, would be implemented, and become operational, by the end of 1997.

In fact, the next three years would be spent in a prolonged re-negotiation of the scope and definition of the projected system. One factor that explains the detour from a simple fulfillment of the terms of the contract is attributable to deficiencies in the scoping of requirements and definition of feasibility that had preceded the signing of the contract. The “business case” outlined a philosophy of ICT development as assisting frontline policing, and proposed a broad strategy to meet the challenges of a police force undergoing a change of culture and practice, but it did not lay out the needs of Police in the kind of detail that system and software designers require. In fact, it is clear in retrospect that Police failed to exploit the precious months preceding the signing of the contract to do the necessary groundwork of discovery. On the threshold of the actual project initiation, they had no staff in place, no provision for housing and recruitment, and had done practically no advanced planning. They were, informants told us, already in breach of contract from the beginning.

As a consequence, most of the first year of the contract was spent in discovery: exploring what were the specific, as opposed to the general, needs for ICT in the contemporary policing environment. Furthermore, at least one member of the planning team delegated by Price Waterhouse was enamored of a new and experimental (at the time) design technology called “object-oriented programming.” As a result, the project

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requirements included a provision that the supplier base the system on an object-oriented graphical interface, even though both Police and IBM were aware that the latter could not deliver this technology, other than through a development phase whose outcome was not fully predictable (we will consider this factor in greater detail later). Finally, Police, subsequent to the contract process, elected to import a head of IT who, perhaps because he had not been part of the negotiation process, or for other reasons, was openly critical of the terms of the agreement with IBM. Whether or not he was, as it was alleged by some informants, hostile to IBM, we cannot say, but it is clear from the evidence that he was a Microsoft enthusiast. (In the background of this particular tension was the contest of Microsoft and IBM, worldwide, to set system standards for commercial software development.) With the new ICT head at Police being an advocate of the Microsoft solution, even though Police had selected IBM as its preferred supplier, and since Police was also involved in some other, more modest, ICT initiatives, INCIS came to be treated as only one priority among others. It got down-graded, in the eyes of senior management, to “just another project.”

The result was a prolonged, and largely irrelevant, wrangle with the supplier over *when*, not *if* (since porting to alternative platforms was already covered by contract), the project would adopt Windows NT in preference to OS/2 (the IBM platform stipulated in the contract). Conferences to resolve differences had to be organized. Arbitrators had to be brought in. As a result of these and other quarrels over network protocols and technologies, progress on the project was severely delayed, and the critical end-to-end guarantee of the original contract was sacrificed.

At the end of 1997, when the project should have been completed, Police and IBM signed what was called a “variation” on the contract (in effect a new agreement). In spite of the fixed costs foreseen in the original contract, Police was faced with the necessity of coughing up some additional monies, not foreseen in the original Cabinet decision.

By now, however, other actors were becoming involved. Because of the delays, and encouraged by persistent union criticism, front line police were becoming cynical about INCIS, and essential front-line support, initially strong, had eroded. Government and its

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agencies were becoming restive. Questions were being raised as to the financing of the project, and decisions taken unilaterally by Police, without consulting Treasury, to re-direct funds to INCIS. The press smelled a juicy story.

The turmoil surrounding the project was not limited to New Zealand. IBM had in the meantime been undergoing a major overhaul, under the leadership of its new President, Lou Gerstner, and its priorities had changed. The company's management had begun to view INCIS as a disaster in the making. In part this was because IBM never did succeed in delivering the promised object-oriented system, and needed an escape hatch. Even worse, IBM International was re-organizing, and decisions that had previously been made in New Zealand migrated to Australia, where INCIS elicited little enthusiasm, or support. Finally, in 1999 the sitting Government was defeated in an election, and the new government had different priorities.

The climate had changed for the worse. Police offered up the project head as a sacrifice, but the damage had already been done. IBM repudiated the contract, and although both sides, IBM and Government, threatened legal action for a time, cooler heads prevailed. The adventure was over.

Much of what was promised in the original contract was actually delivered. But this positive achievement was overshadowed by a preoccupation with what had *not* been accomplished. And furthermore, there was a smell of failure – even scandal – clinging to the project that could not easily be ignored. Nobody, neither in Police nor in Government, came out of the experience totally unsullied. Two years later, we discovered, the topic of INCIS had become taboo in Wellington circles.

Our objective

More than twenty-five years of research into the dynamics of implementation of new technologies into organizational practice has convinced us that the result of implementing a new system is rarely what was expected at the time the project was embarked on. In fact, in our experience, INCIS does not come even close to rating the prize for the worst failure we have witnessed. It is about average on the disappointment scale (although high

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on the ambition scale): it produced both less than its promoters hoped (and hyped), but more than its detractors assert.³

Most less-than-successful implementations of technology, in our experience, are screened from the public by managerial discretion. INCIS had the singular misfortune to unfold in the fishbowl of national politics (including three election campaigns) and to get caught in the headlights of an invasive press, hungry for scandal. This was unfortunate for the individuals whose careers suffered by their association with the ill-fated project, and for the good name of the Police, but it has the advantage for research that it *was* visible, and offers the hope that we might learn something constructive from it. Our object in this study is to understand how INCIS illustrates a problem of adaptation and learning that most enterprises face as they envisage innovation on the scale of such an ambitious project, if they are to successfully carry it out.

³ Hopkins and Kessler (2002) reports studies conducted by Morgan Stanley and Gartner that confirm our own findings. Morgan Stanley, for example, estimates that U.S. companies wasted something in the order of \$130 billion US on unneeded software and other technology in the previous two years. Their 25-year study sees the problem as being the wrong technology, inefficiently implemented, and too little time devoted to making the innovation work. Gartner believes that, worldwide, perhaps as much as 20% of the \$2.7 trillion US spent on such technology each year is wasted. Hopkins and Kessler cite particular disasters: Candymaker Hershey Foods' new software, part of a \$112 million US system, was incompatible with legacy systems, and the company lost \$120 million US in sales during the Halloween period; KMart installed software costing \$130 million US to support its distribution system and then was forced to scrap it, only to subsequently declare bankruptcy; Nike installed software costing \$400 million US to encourage retailers to order directly, but glitches in the software led to a serious profit decline in 2000. The researchers believe Chief Executive Officers spend too quickly without clear goals, underestimate the time it takes to make new technology work, buy too much of the wrong technology, and fail to implement it correctly. Technology has tended to be viewed as black magic, they think.

In this context, the problems of INCIS are seen to be, not an exception, but part of a pattern. It is this pattern that we are concerned to document.

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Towards a framework of analysis

De Michelis, Dubois, Jarke, Matthes, Mylopoulos, Schmidt, Woo, and Yu (1998) argue that when we are dealing with change that is stimulated by the introduction of innovative ICT technologies into organizational practice we need to consider three “facets” that they call *systems*, *group collaboration* and *organization*, and we prefer to re-baptize as *ICT*, *Workworld* and *Management*.

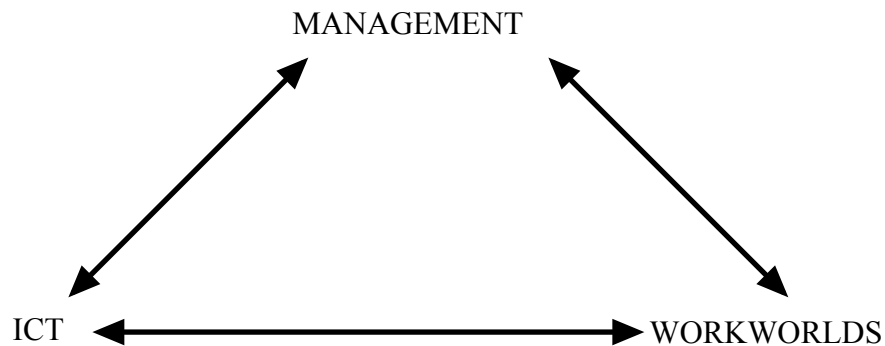


Figure 1. A three faceted view of ICT development/implementation.

They call them “facets” because the respective perspectives are based on different kinds of organizing logic, or rationalities (Taylor, 2001). As Michelis et al observe, the workworld of collaborative group activity is “open-ended, fluid,” and “in constant tension with the more formal and prescriptive nature of organizational structures and processes” (p. 65). It involves “people working on a common process (for example, handling a purchase order), or an ad-hoc project (for example, coauthoring a report). During such collaborations, people coordinate their activities, deal with contingencies, and change their practices through discussion and learning. The nature and style of work fluctuates and is often not predictable” (p. 64).

Front-line policing is perfectly illustrative of the kind of “open-ended, fluid” world of work Michelis et al are writing about. Not only is the work unpredictable, and frequently demanding of initiative and ingenuity, it is inherently dangerous; not only does it make

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demands on individual character, it also implies the ability to engage in collective work practices; and, of course, it involves dealing with situations that are socially marginal and people who are laboring under high stress. And in no domain of work do the front-line practitioners chafe more under the constraints of administrative routine than in the police.

The workworld of ICT developers and designers (because it too is a workworld, although of a special kind) is quite different. Its environment is, fundamentally, that of an abstract system of symbols, that must be manipulated by people who delight in problem-solving. In spite of the stereotype of the anti-social hacker, it is often a sociable world of people who trade ideas and work things through interactively. But it has neither the inherent unpredictability of police work, nor does it, for the most part, involve dealing much with people who are not part of its culture (although there are notable exceptions). Its rationale is, ultimately, mathematical in origin. Its output, in relation to the usual workworlds, is not the work itself, but a representation of it, in the austere code of modern software. Its conceptual basis is not people and situations, and how to deal with them, but the algebra of algorithms. That which cannot be fitted to the forms of boolean, or binary, logic cannot, ultimately, be represented in its code, and therefore cannot be completely described. Much of what people know in the usual worlds of work is tacit; but the products of computer software are explicit, however much the designers draw on their *own* resources of tacit understanding in writing good code to support the artifacts that constitute the material output of the design laboratory.

The tensions that characterize the interaction between ordinary workworlds and their representations in software logic have been abundantly documented, beginning with Suchman's (1987) distinction between "plans" (or formal descriptions of action) and "situated action" (the real thing, performed by people who draw on a wealth of background knowledge in the accomplishment of work). Sachs (1995) similarly contrasts what she calls "activity-oriented/tacit" and "organizational/explicit." What she has in mind is the difference between the way work actually gets done, and how it is subsequently transformed into the structured procedures of management, and the coded representations of technology. Orlikowski (1992), while she argues that all technological artifacts are ultimately "interpretively flexible" in the sense of all being socially

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constructed, nevertheless recognizes that the actions that *constitute* the technology (those of the designers) tend to be separated in time and space from the actions that *are constituted by* the technology (those of the user community) (p. 407). She refers to this gulf as a “time-space discontinuity” (p. 407), and it is here, she thinks, that misunderstandings may arise.

Management illustrates yet a third mode of reasoning and acting. Its focus is less on the particulars of dealing with a single client, or accomplishing a single task, than on the accumulation of people and tasks that is the basis of large organization. Nor is it concerned with abstract models of work performance, represented in code. It deals with sums, averages and collective actors. Its logic is grounded in dollars and cents, and in accounting. It aims to generalize across the diverse activities of the organization, to detect trends, to measure performance in the large, rather than in the small. It depersonalizes, turning the nuts and bolts of daily routine into figures that can be displayed, and serve as reports: what was hands-on knowledge for those in the workworld is transformed into information. It manages the books. It seeks out resources, and distributes them. It is overtly political, in a way that neither the collaborative enterprise of the workworld, nor the stringent representations of ICT, is. It tends to aim at order, not variety; at control, not innovation. Even when it supports, and encourages, innovation, it still fixes targets, and establishes deadlines, and audits progress in conformity with the budget.

In the normal course of events, organizations stabilize. Technology becomes a constant, and turns into no more than a familiar infrastructure of well-used machines. Management, and the communities they administer, work out, in the pragmatics of living together in a state of mutual interdependence, an adaptation - a kind of compromise. It is a compromise that may leave a residue of irritation on both sides, but it is mostly an irritation that can be lived with. The point that Michelis et al are making, however, is that in periods of technological innovation the more-or-less established equilibrium is going to be disturbed. People in the workworld are going to have to learn to adapt to a new technology system environment: one that will at least temporarily disrupt their normal routines of work, leaving them all too often feeling vulnerable. Management, whether it

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realizes it or not, is going to have to learn how to administer differently. And the ICT people are going to have to get the representations of how the work is done in that particular organizational world right (otherwise their machines will not be effective), while satisfying the frequently insistent demands of a management that does not fully understand the implications of the systems that it has just bought.

Bridging the interfaces

Implementation raises issues of interface: interfaces between ICT and the user community, interfaces between ICT and management, and interfaces between management and its own communities of collaborative work. The question of how to negotiate the interfaces always arises. A failure to articulate the perspectives can only result in decrements of organizational performance. Management, for example, may introduce procedures, and have them embodied in computer code, that actually prevent people from accomplishing their task (Sachs, 1995). ICT designers may write code that ignores the reality of variable practices within a single organization, and is thus non-implementable (Taylor & Van Every, 1993). Management can become disconnected from what its own employees are doing, and find it impossible to make enlightened strategic choices (Carroll, 1993). Every time a disconnect happens the smooth working of the organization is in danger of being disrupted.

We call the communicative bridging of the differing perspectives *translation*.

The research we discuss in this report focuses on the dynamics of the negotiation of the triangle of interfaces that INCIS – the quintessential ICT implementation - made newly salient in the context of police work and management. What were the stages of translation that can be inferred, retrospectively, from documentary evidence and interviews? We look at the manner in which managerial intentions became translated into requirements for ICT design and implementation (and vice versa), how design was being translated into work practice (and vice versa), and how changing patterns of work became translated into managerial practice and policy. Or perhaps we should say, with respect to this third translation, given the unhappy outcome of INCIS, we will be looking at where this latter translation ran into difficulty, and failed to be made.

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The issue of translation

Why do we use the terms “translation” and “translator”? One reason is that translation is literally what is involved. When someone versed in ICT starts talking to someone in management about “relational databases,” “object-oriented programming,” “Token Ring versus Ethernet,” or any of a host of other expressions that you can find sprinkled throughout the INCIS reports, it’s easy to imagine the glassy stare of a manager for whom the jargon is all Greek. It is only when the prescriptions of the ICT specialists have been re-framed in the familiar language of costs, benefits, budgetary time frames, personnel quotas and staff relations, supervision, reporting procedures, and government policy, that management is likely to think it has begun to understand. Vice versa, the language of “productivity” and “return on investment” slides easily off the lips of managers (even in the public sector, these days) but to a software designer, trying to capture the pattern of work characteristic of some field of endeavor in the coded language of a diagrammatic representation representing a typical “workflow,” these are words out of another world of meaning, even though they may have become familiar enough from previous projects. Similarly, the computer literate who instructs a naïve user to “clear your browser’s cache” (a message we received) is likely to encounter a blank stare in return. And anyone who works in a large organization knows how hard it is to get management to pay any *real* attention to the nitty-gritty of dealing with the public on a daily basis. Translating one person’s *particular* experience, however revealing it may turn out to have been, into a *general* organizational policy, is highly problematical, as post September 11 investigations into the role of security intelligence showed: there *were* people who knew what was threatening to happen but their voices were never heard where the decisions were made (or if they were heard they were ignored – not *really* heard).

To turn one frame of reference into another requires the intervention of a translator: someone who speaks fluently (or at least appears to do so) both languages. Only then is the interface bridged. It matters, of course, how faithful the translation *is*: if it distorts more than it communicates the risk of misunderstanding is greatly enhanced, as we shall discover when we look closely at the INCIS experience.

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But there is a second reason we use the term “translation,” and this usage has a less intuitively evident meaning, since it draws on a body of thought known as actor-network or translation theory (Callon, 1986; Latour, 1987; etc.). Translation theory, as we adapt it to our present purposes (it was developed in a different field, that of the sociology of scientific knowledge), views the organization as a network. But it is a network, not so much of individuals, as of clusters of activity, each characterized by the attachment of its members to a common interest. Within Police, for example, the Criminal Investigation Branch (CIB) exemplifies the kind of cluster of activities we are referring to. The CIB thinks of itself as an elite group, distinct from the usual front line of police work: detectives are not just cops. We will meet others, in the course of our investigation. The engineering group responsible for telecommunications is one, for example. Regions can be said to develop a common interest, especially in New Zealand. The Human Relations department is another instance of a network node, even though it is a back-office, not a front-line, function.

Organizations that are stable, with settled administrative routines, tend to be characterized by networks of well-entrenched interests, resulting in a kind of geography of “turf,” as it is often dryly referred to, in many bureaucracies. Turf is vigorously defended against any and all comers.

The problem with a project such as INCIS is that it cuts across turf. Projects of this scope, and novelty, can only succeed if they are able to enlist the support of a critical coalition of interest clusters, that have enough clout, organizationally speaking, to impose their agenda on the network as a whole. Some people may then grumble that their point of view has still been ignored, but if the interest links that support the project are powerful enough, the project will maintain its impetus.

An issue that then arises is how a coalition of interests sufficiently powerful to create a support base for an innovative project is constituted.

In an organization, there are two strategies that can be employed to lead to coalition formation. One is to enlist the support of superiors in the chain of hierarchy who, by definition, are invested with the authority necessary to impose their will on others, if push

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comes to shove. The other is to develop horizontal alliances, across the organizational network, in the hope of creating a groundswell of support, thus generating a sense of inevitability that the innovation being proposed is going to be widely implemented. (The ideal strategy, of course, is to combine the two.)

Both strategies have their advantages, but also their risks, and their limits. Superiors are hard to pin down, over the long haul, because they are the target of many other projects, all competing for their attention. They may become deflected from their first commitment (as we shall see later happened in the INCIS case). Horizontal alliances have the disadvantage that they are expensive in time and effort, and it is hard to reach everybody. Those who are left out then become potential rivals (unions, for example), and may work to produce a stalemate, that only executive action can resolve (again we will see examples in the research we are reporting on). Even executive action is not enough, if there is not a reasonably broad basis of support for the initiative.

Translation theory, in the second sense in which we are using the term, is thus about how new kinds of interest cluster are created, that incorporate previous clusters into new combinations. It could even be said that the *network* was learning, if we are prepared to include in the term “learning” a reconfiguring of a network, not just of interests, but also of meanings.

What is especially interesting in the INCIS case was that its entire fate hung on just such a reconfiguration. When it was being formulated as a project, it corresponded to *none* of the already existing clusters of activity and interest. CIB was an enthusiastic supporter of *a* new system, but INCIS was not what it had in mind. Computer Services was too preoccupied by the inherently menial task of supplying help to users to be a serious player in the INCIS stakes. The network engineering group had interests that intersected with those of INCIS, but it was too specialized a function, and not enough of a contender in the overall scheme of things, to take it on. Front-line officers would subsequently become interested in the project, for a time, but in any case they represented too diffuse a cluster of activities for their collective interest to be dominant. The only ally the project could count on, at the beginning, was top management of Police, and even *it*

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seems to have been less interested in the project as such, than in the potential it offered to exert leverage on Government, and to re-direct some of its resources to Police.

Locking in the interests

For translation in the second sense (i.e. creating new clusterings of interest) to be effective, it is necessary to do more than simply appeal to others' interests. They have to be committed: nailed down. Appeals to interest are a necessary first step, but their effect is too transitory to assure the continuing support necessary to the realization of a project that is going to take anywhere up to five years to bring to fruition. Getting the necessary interests aligned to form a coalition requires locking into a relationship in which others now recognize that *their* interests are at stake. The most effective way to accomplish this objective is to arrive at a relationship based on a complementary negotiation of inter-locked agencies.

An inter-locking agency relationship is an instance of what we call *co-orientation*. A unit of co-orientation forms when one partner, B, takes on the task of realizing some object, X, in order to give reality to the intention of a second partner, A. When such a unit has formed, both A and B are committed, in that B's legitimacy to act is supported by, and conditional on, the mandate delegated by A, while A is committed because B's actions are a practical expression of A's intentions. If it is clear to all that A's intentions are the motivation for the project, there is no danger of A reneging; otherwise, there would be too great a loss of face. As long as the unit holds, the system is stable. We use the term "imbricated" to refer to this stability.

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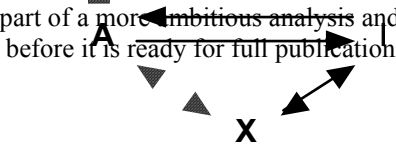


Figure 2. A simple unit of co-orientation.

Consider some of the imbrications that were necessary for INCIS to succeed. For one thing, the Commissioner would have to be convinced that INCIS was an explicit expression of *his* intention, to the point where his ego was threatened by any menace to its realization. IBM (or whatever developer was chosen as principal supplier) would have to be convinced that the work they were doing was genuinely an expression of the intention of Police. Vice versa, Police would need to be convinced that IBM was effectively committed to giving reality to the intention of top management, via the intermediary of the INCIS project. Government would have to be persuaded that its interest was being served. Front-line police would need to feel that INCIS was acting in their interest, as its agent. Other ICT services would have to feel that their agency was being mobilized in the accomplishment of INCIS. And so on.

Each inter-agency relationship is an example of what we mean by “translation” in the second sense: the locking into an association of complementary interest clusters. Obviously some of these links are more critical than others (if for no other reason than the uneven distribution of power to control resources in an organization), but if they all, or too many, fail to be made, the project is running a great risk of foundering.

To summarize

The “facets” of which Michelis et al are writing are not people; they are dimensions: an abstraction that allows those authors to generalize across contexts. The term speaks to cultural differences that inevitably separate the domains of the modern organization: its worlds of work, its technology and its management. But in real-life contexts, group

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collaboration at work means police officers doing their daily work; ICT means teams of designers building software artifacts to be integrated into actual information processing machines and networks; management means running the organization. All these activities involve real people, and what we have called the “interfaces” that link the three communities are realized as the communicative activities of those people. But if, as we argue, the logical bases of practical work, systems design and management are essentially different, and if each supports a community of people who work together, and generate a discourse through which they make sense of their respective environments, then it follows that the interface must be constructed by processes of translation, by means of which the preoccupations and interests of one community are not only made salient in the other, but come to be perceived as tied together by bonds of common interest.

Our work plan: Exploring the interfaces as translation processes

The research strategy we will be following is dictated by our perception that ICT innovation engenders interface issues of three orders: management \leftrightarrow ICT, ICT \leftrightarrow workworlds, and workworlds \leftrightarrow management. However, these respective interfaces are made salient at different times, and their importance varies, depending on the advancement of the project. The first phase of technology development occurs at the management \leftrightarrow ICT interface, since it involves arriving at a mutual definition of the object and scope of the project. The various interests of the workworlds of the organization are *presumed* by this negotiation, but not, for the most part, directly *involved*, since management takes it for granted that it is the legitimate spokesperson for the organization as a whole. This is where the first translation occurs.

The translation, if successful, will result in the constitution of a co-orientational unit, where the ICT developer is recognized as a legitimate agent of the organization, in the sense of giving material expression to the intention of management, with respect to the object on which their respective attention is focused for the duration of the project (in this case, INCIS). A contract is entered into (in the INCIS case, accompanied by all the usual legal trappings). Our first emphasis, therefore, is to understand the background to the signing of the contract. We need to know, behind the screen of the legal language,

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whether the translation had been effectively accomplished: was management's intention *really* engaged in the effective co-orientation; was the supplier *genuinely* committed, and to what extent? Anything short of full commitment of interests dedicated to the realization of the project is a presage of trouble to come.

The second interface is quite different in its demands on translation. It involves actually producing the technology. Here the salient translation is from ICT to the workworlds, and vice versa. The systems to be implemented will only work if they do in fact correspond to the realities of the daily work that people in the organization do. Now a different set of perspectives are made salient. The ICT developer must become the effective agent of the working community, since the latter's commitment to the new system will only be forthcoming if it recognizes in the technology a reflection of itself, and its needs (Orlikowski 1992).

At this juncture, the developer is likely to be confronted with a dilemma, since the needs of the organization, as formulated by its workworlds, are not necessarily (or even likely) to be identical to those that were enunciated by management. And of course, since workworlds are, by definition, multiple, understanding their intentions is a bit more complicated than grasping those of management, which is entitled to speak with a single voice. On the other hand, the expression of the needs of the organization that the people who work there make is also likely to be more authentically a representation of its lived reality than any a prior managerial prescription.

The third interface is characterized not so much by a single phase, as by an ongoing accommodation of the various perspectives: the developer's, those of the workworlds, those of top management and even those of Government. It takes the form of a multiple translation, involving several actors, that occurs in parallel with the second. It is thus less a single moment of translation than a continuing re-alignment of agencies, as the many interests within and without the organizations who have entered into partnership engage in a running contest to have their perspective heard. A continuing, day-to-day play of political action is typical of senior managements everywhere. In this third translation, we need also to pay attention to the role that the intermediate levels of management are

PRELIMINARY DRAFT: NOT FOR ATTRIBUTION OR CITATION

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playing in the continuing process . The risk here is that either or both of the top managements of the partners, Police and its corporate supplier, will be deflected from their original intention as they adjust to these influences.

Because INCIS was a joint venture, linking two organizations in an over-arching corporate relationship of co-orientation, our analysis of this third complex translation, workworlds<->ICT<->management, will need to take account, to the extent that we have insight into it, of the dynamic of reconfiguration of the network of interests occurring in both client and vendor.

There is one other vital difference between interface # 3 and the others. The translations that mediate the first and second interfaces both involve a relatively short-term relationship of delegation of responsibility, since the time horizon is fixed by contract. There is a sense, moreover, that each party is obliged to treat the other as an equal. IBM, in the global context, may dwarf the New Zealand Police in size, but IBM New Zealand (when it still existed as an entity) did not. Furthermore, especially given the commercial aspirations of INCIS (the hope of future sales for the system, internationally), New Zealand Police were a microcosm of Police everywhere: a not inconsiderable player, even for a firm as large as IBM. On the other hand, the workworlds<->management translations internal to both IBM and Police occur within the vertical logic of an established hierarchy. As we shall see, the pattern of translation characteristic of a hierarchy where power is unequally distributed is quite different from one that is found in a more horizontal transactional context.

Embracing risk

Risk, in the world of ICT projects, is the name of the game. We have already alluded, in an earlier footnote, to the difficulties many large organizations encounter in implementing information and communication technology. There seems to be a common pattern. First, some rather grandiose expectations are created. The problem, or challenge, the organization faces is transparent to all. The implementation of sophisticated ICT is declared to be the solution. Similar to what happened in the New Zealand Police, an attractive business case is formulated, promising not only a way to deal with the

PRELIMINARY DRAFT: NOT FOR ATTRIBUTION OR CITATION

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challenge the organization faces, but also to offer impressive concrete benefits, in productivity and financial return. Partly, the document is explained by the natural enthusiasm of the technology proponents – what might be called the “push factor.” Partly, the writing of the case is necessitated by the realities of how funding is allocated – the “pull factor.” Unless the project was hyped, it would not make it through the executive committee and, in the INCIS case, Treasury and Cabinet.

Now reality enters. First, as the planners get down to the nitty-gritty, it turns out that the technology available is less adapted to the context than had been thought when the business plan was written. Vendors, after all, are as prone to excesses of enthusiasm as the clients they serve, and they are, furthermore, under pressure to make the sale. So now it turns out there is development work to be done. And fifty years of experience in software development has taught the field that, where constructing software is concerned, the promise comes easier than the product. So there are either unforeseen delays, or untried applications are rushed into service before their bugs have been eliminated.

This is the first inherent risk of any ICT project, and INCIS is a case in point, as we shall see.

The second risk lies elsewhere, in the implementational dynamics of ICT, and is a problem that involves management as learner and translator. Managers (i.e. the people who commit to buy the technology) may reasonably expect that they understand the work that forms the practical basis of the enterprise they direct. The problem is, however, that in the case of ICT they don't understand such work *in the same way that systems designers do*. For a very long time (comparatively speaking, in today's accelerating environment) the knowledge that has accumulated in how to *build* a system (design workflows, write software, etc.) has far out-stripped the knowledge accumulated in how to *implement* a system, within the context of ordinary work. For a considerable time, in fact, implementation was not even seen to be problematical: just “training.” Gradually, however, in quite recent years (over the past decade and a half), implementation-based knowledge has also been accumulating. What it shows is that adapting work practice to new technology in a way that effectively realizes the promised gains is a process that

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This report is incomplete, the first part of a more ambitious analysis and is likely to be considerably revised before it is ready for full publication. requires considerable time. Nothing worthwhile happens overnight in this slow accommodation of work patterns to new technology, and new technology to work habits. Unfortunately, in the INCIS situation, the contract was predicated on a much shorter time horizon, and, even worse, the organization has failed to make much provision for an extended implementation: again, just “training.”

With the first risk, the danger of less-than-adequate technology, at least one can blame the vendor. With the second risk, the host organization has nobody to blame but itself.

Notice the sequence, which INCIS illustrates well. The business case makes the project appear relatively risk-free. Management, which is as risk-averse as anyone else, is reassured. But, as D-Day nears, warning signals begin to be heard. Management, however, has no real way to deal with the risk, other than to cancel the project, which it is typically reluctant to do, if for no other reason than that it is already visibly committed to it. Since management typically lacks real understanding of the technology, or of the dynamics of implementation, its typical response is to call in the consultants, or hire an “expert.” To some extent, this merely aggravates the problem, since although consultants are skilled at analyzing the situation, and offering sage advice, when they leave (as they invariably do) the responsibility still lies with management. All that has happened is that the day of reckoning has been postponed.

The only proper solution is for management itself to embrace the risks, and deal with them. And this is exactly what management is often reluctant to do, because if it did so, it would quickly become evident that *it too was being obliged to learn*. To be reduced to the status of a learner, as we all know, is to be put in a less than flattering light to others who seem to know more than you do, including your own subordinates, and the consultants you have employed.

So management often responds very much in the same way, we will discover, the Police executive did in with respect to INCIS. Instead of putting itself into the same learner situation as its employees and embracing the risk of the innovation it has embarked on, it off-loads its responsibility.

PRELIMINARY DRAFT: NOT FOR ATTRIBUTION OR CITATION

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Bridging interface # 1: ICT to management, and vice versa, or phase 1 of INCIS (pre-contract activities)

Building relationships with the supplier

The critical relationship, for Police, when it decided to embark on the development of a new ICT system, was the one it must establish with a technology developer and supplier. This was a relationship without a precedent, for this organization: it was entering, whether it understood it was or not (arguably not), into what was for it uncharted territory.

In the ordinary course of events, organizations develop relatively stable internal relationships. Police organizations, for example, are characterized by a culture of respect for hierarchy. Serving officers are familiar with the system: its constraints, and its loopholes; how to survive in it, and how to work it. When everyone has attended the same police academy, and wears the same uniform, there is a broad basis of taken-for-granted tacit knowledge about how the system works, in spite of the multiple contradictions the organization, taken as a whole, incorporates, and the rivalries that inevitably characterize it. But to take on the responsibility for a contract of close to a 100 million dollars with another corporation which has a quite different culture, that of an international technology giant such as IBM, is to enter a state of ambiguity. Police do not have a tradition of making the kinds of compromise that are involved in crossing the boundary between an agency of state – a prime instrument of law and a self-proclaimed protector of the public - and a commercial operation, dedicated to profit.

Police were thus confronted with the necessity of negotiating a relationship, whose parameters would have to be invented. And IBM, although it has a long history of dealing with a variety of clients, has no special tradition of working with the Police. Yet, with INCIS, the two corporate worlds would now find themselves forming a co-orientational triad: one *actor*, Police, linked in a common fate with another *actor*, IBM, through their common preoccupation with a single *object*, INCIS. All three, Police, IBM and the technology, were entering, as collective actants (Latour, 1987), into a

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relationship of coorientation (we will see later why it is so important to think of the technology as itself an actant). It was a relationship that had, officially, a term, in that it had both a starting and an ending point (according to the contract), but in fact Police were embarking on a more extended collaboration that would continue to involve an ICT partner such as IBM, even after INCIS had ended.

In essence, the relationship being established, and which is the focus of our first phase of analysis, committed one actor, IBM, to act as the agent of the other, Police, in the realization of an object of common concern, INCIS. The terms of that relationship, however, were negotiable. If not well understood, or not allowing for a certain give-and-take based on a minimal degree of mutual trust, the risk attendant on a venture of the dimension of INCIS would be greatly magnified.

Determining the intention of Police

Nonaka and Takeuchi (1995) think of organizational innovation as occurring within the framework of what they call an organizational intention. By *intention*, they mean something like a goal, or policy, or strategy, or mandate, or mission: a setting of the compass so that the organization as a whole knows where it is headed. The intention of the organization, they think, is determined by top management, with inputs from middle management. Once established, the intention of the organization becomes the benchmark against which to evaluate the worth of a given innovation: its contribution to the development of the organization.

We like the term “intention” for a different reason, because it serves as a reminder that an organization’s purposes are voiced by ordinary mortals. Its future emerges through the activities of its members, not in some transcendent, abstract sociosphere. It is also a reminder that intentions are not fixed: they may be *inflected* in new directions, as the result of one kind of influence or another, or in response to some unexpected contingency.⁴ Nor are they necessarily stable. The organization may find itself *deflected*

⁴ In this respect, our reading of how organizational intentions form reflects an influence on our own thinking, that of March (March and Olsen, 1976 and 1979; March & Weissinger-Baylon, 1986).

PRELIMINARY DRAFT: NOT FOR ATTRIBUTION OR CITATION

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away from what it had originally set as its direction: it may find its focus blurred. For the researcher, also, who must read the history of the organization from its documentary traces (papers and interviews), the intention of the organization will be *reflected* in multiple ways in the testimonies of its members. Each member interprets the collective organizational intention in the context of his or her more immediate objectives and perspective. Finally, and this will be of singular importance in the telling of the INCIS story, intentions may well be *conflicted*. Conflicted intentions, as psychologists have long realized, are not untypical of the individual, who may well desire things that, on closer inspection, are contradictory. A conflicted intention, in the context of an organization, is more likely than not to be the norm: organizations are arenas in which many interests converge, and must play out their fates in interaction with each other. According to our informants, New Zealand Police were no exception to this rule; as early as 1991, the consultants engaged to conduct an initial overview of previous attempts to build ICT systems in Police were commenting on “the adverse impact” of “personality clashes” in arriving at a common policy in the past. As we shall discover, personality clashes would continue throughout the INCIS project’s history. But personality clashes may also reflect conflicts of interest.

All of these tendencies will become evident as we examine how Police and IBM separately negotiated a collective intention with respect to INCIS, and how they worked to align the respective intentions to constitute a co-orientational relationship, on the basis of which INCIS might be realized as more than a project: an actual working system.

Who were the players?

Before INCIS, Computer Services occupied a rather lowly status within the police hierarchy. Since Police’s most important computing facility, the Wanganui computer, had been out-sourced to a commercial firm, GCS (Government Computing Services, later acquired by the international company EDS), the few computer specialists within Police had a modest role to play, in servicing operations, and responding to appeals for help. The most important technical group in the organization was composed of the network engineers, and they had carved out for themselves a significant role in building and

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maintaining the lines and services that constitute the physical infrastructure of Police communications. They were, however, not well versed in the computer-based technology that would be the key component of the new system. So Police saw themselves as having no alternative other than to turn to outside consultants for advice.

In this initial phase of our investigation, we will thus be focusing on the translation that resulted from the activities of the INCIS project planning group, led by consultants. Out of this translation phase, it is assumed, the project will take shape in a form and a language compatible with the concerns of Police management, and the government to which it reports and from whom resources must be drawn. It will, in turn, formulate the intention of the Police in a language that is comprehensible to the bidders: the agents who are to be asked to actually construct the new system. It is in this phase that the ground rules of the future association will be first laid out.

IBM New Zealand, the eventual Police partner in development, was, at the time, a relatively autonomous company, within the larger framework of IBM World Trade, with an established business in serving the needs of both business and government (in Wellington, notably the latter). It was, however, a service company, not per se a developer. The development of new technology took place elsewhere, mainly in the United States. This fact too would have a substantial bearing on the outcome of INCIS.

The role of organizational culture

Police the world over are famous for their relatively hermetic culture. To a certain extent, Police constitute a universe unto themselves. They interact daily with the public, to be sure, but they also remain apart, if only because of the singular role they are asked to play in society. They are responsible to Government, and to the larger public it represents, but they also (certainly in New Zealand) are accorded a degree of autonomy that no other public service can claim. The idea of becoming a partner in association with some other agency in the realization of a project where they are joined in a common fate has little precedent in the Police world.

Police is not a commercial firm, accustomed to making accommodations to achieve a pragmatic outcome. It is, on the contrary, used to acting autonomously. Officers learn

PRELIMINARY DRAFT: NOT FOR ATTRIBUTION OR CITATION

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quickly to be self-reliant. They have what was described to us as a “can-do” attitude to dealing with challenges and potential problems. They are, moreover, taught from the beginning to be skeptical of the testimony of witnesses. They are resigned to being the butt of media criticism. A degree of suspicion as to the motives of people is part of the psychology of policing. It is a suspicion that is manifested not only with respect to outsiders, because it may also characterize relations within the force. But this prickliness, and independence of spirit, is counterbalanced *within the context of the police force itself* by a potent sense of identity with Police, and policing. There is a police mystique. When it comes to outsiders, however, the suspicion is undiminished by considerations of organizational culture.

IBM, of course, had its own mystique. For thirty years and more, it had represented the standard for technology development. It had totally dominated the mainframe market for decades, and had even managed to steal a lead in the new PC sweepstakes, at least initially, at the beginning of the ‘80s. It is true that, by the time INCIS was being mooted, IBM had found itself in increasing difficulties: its market dominance eroded, its technology leadership in question, and its profits gone south. But the mystique had not quite disappeared, nor had its effects on the way IBM was managed: bureaucratic, more than a touch arrogant (“Big Blue”), and a bit ponderous in its response to events.

In the INCIS story, organizational culture would turn out to be a major factor.

Who would take on the responsibility of formulating the Police intention?

The formulation of the intention of Police with respect to INCIS, it will turn out, would not be worked through by serving police officers, for the most part, but by people from outside, hired for the purpose. There was, however, one significant exception: the project head himself, Superintendent Crewdson, and, as we will discover, the eventual issue would become to what extent he himself could be said, ultimately, to embody the Police managerial intention. Even he, however, joined the planning team relatively late in its history, when many of the key decisions had already been taken.

The third facet of the organizational triad, the workworld of front-line policing, is reduced in this initial phase to a virtual presence, minimally consulted in the formulation

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of the INCIS plan, although frequently cited as its eventual beneficiary (Figure 2). The principal translation at issue is Management<->ICT, i.e. Police<->IBM/GCS.

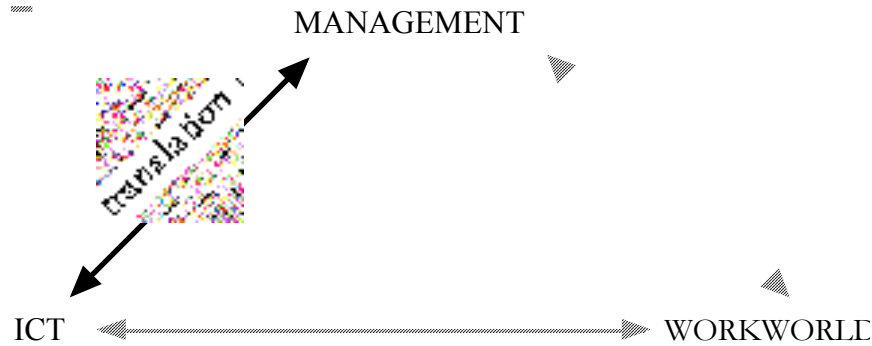


Figure 3. Translation # 1: mediating the ICT<->Management interface.

The genesis of the Project Team

Although there was no full-fledged ICT service in New Zealand Police at the end of the decade of the 80s, this does not mean there were no technology projects under development. There were, for example, two previous versions of INCIS, neither of which had elicited sufficient organizational support to go forward. The Criminal Investigation Branch (CIB) had developed its own special system, called the National Information System (NIS) to serve its particular needs. Other projects had sprung up here and there (the Serious Investigation of Crime Application, the National Investigation of Crime Database), and of course PC's were proliferating throughout the network of police operations. The genesis of the eventual INCIS, however, seems to have been the appointment, in 1988, of a new head of finance and planning, Don Gray, with, incidentally, almost as an afterthought, responsibility for ICT.

The combination was crucial. As head of planning, it was evident to Gray that there needed to be some orderly development of the ICT infrastructure, if the needs of Police were to be served in the future. A proliferation of non-compatible local systems would end up producing a tower of Babel. As chief financial officer, he knew that dependence on the Wanganui computer was bleeding Police dry, especially since the system was

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rapidly becoming obsolete. There would be capital investments coming up, whatever direction Police took, so even standing pat on technology would be costly. And as head of ICT, Gray was in a position to integrate the disparate initiatives that were springing up here and there like mushrooms. Finally, it is tempting to speculate that it helped that Gray was *not* a sworn police officer, who had come up through the ranks, since it meant he was also not a prisoner of a culture that does not take easily to efforts at integration, and is not especially knowledgeable about information and communication technology. Gray chaired the INCIS Steering Committee until he withdrew from Police in 1993.

On the other hand, the down side of Gray's central role was the absence of an outright personal commitment to ICT on the part of other senior managers. The Commissioner and other members of senior management may have supported the INCIS initiative, but they did not *own* it. This lack of immediate involvement in, and understanding of, ICT was, we shall see, to continue to haunt Police throughout the life of the INCIS project.

An INCIS Project Team was established in the autumn of 1991, with the seconding to Police by a major consulting firm, Price Waterhouse, of two planners, Martyn Carr and David Cittadini, both with experience in ICT. Their work would occupy three years, and culminate in the signing of a contract with IBM in 1994. It is this team that would not only define the parameters of INCIS for both Police and IBM, it would circumscribe the relationship between the two parties, and take upon itself the role of enunciating the "vision" of Police, for ICT development. It is in the reports of this team that the first translation occurred: on the one hand, an elaborate specification of technical requirements, on the other, a statement of what the "business" of police is. The team described how INCIS would impact on the administration of the service: what economies could be expected from INCIS, what personnel decisions would be affected.

Once again, as we shall see, the actual role of both Police management and its workworld in this translation was limited. The main job of translating the intention of Police was delegated to outsiders; ownership of the project by Police would not necessarily follow. The vision projected was its own. As the INCIS Project Team would

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itself remark in its “handover” report to the Commissioner: “It is very clear that this concept and vision [they are speaking of the vision they have formulated] is not clearly understood within Police and this is an area that needs to be carefully managed.”

To understand how little Police actually participated in establishing a statement of their own intention with respect to INCIS, let us consider who was involved, and in what role, during this initial 3-year exercise in defining INCIS and the Police-IBM relationship.⁵

November, 1991: Consultants **Carr** and **Cittadini** (their review of previous projects finds earlier initiatives disjointed and failing to mobilize the organization as a whole);

December, 1991-March, 1992: **Carr** and **Cittadini** aided by Sergeant *Burt* (from the CIB support service) and, for a brief time, *Clark*, from Police Computer Services (scoping study for Police requirements; this phase was followed by a “workshop” to brief senior officers and discuss strategy with them);

March, 1992-May, 1992: **Carr**, *Burt*, two “business analysts” from outside Police, **Agnew** and **Newton**, and (for this phase only) Detective *Coleman* (business requirements definition);

May, 1992-October, 1992: **Carr**, **Cittadini**, *Burt*, **Agnew** and **Newton** (feasibility study);

July, 1992–December, 1992: same team as above (briefing the ICT market, issuing a request for information or RFI);

October, 1992-April, 1993: same team with additions, *Warner* from Engineering Services (telecommunications), *Crewdson* as Change Manager (in February of 1993), and three other sworn officers, Inspectors *Carson*, *Allo* and *Waugh* (request for proposals); note that the people responsible for “defining Police’s vision in terms of the business”

⁵ In order to highlight the respective contributions to the formulation of the INCIS project, we adopt the following convention: Consultants appear in bold, police officers in italic, and front-line police officers in both italic and underline.

PRELIMINARY DRAFT: NOT FOR ATTRIBUTION OR CITATION

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were **Carr**, plus the business analysts **Agnew** and **Newton** and *Burt*, a police sergeant whose expertise was in technical support (a first version of the business case was apparently presented to the Police Executive Conference in November of 1992);

January, 1993-March, 1993: police officers *Carson*, *Burt*, *Waugh* and *Allo* (determining the operational impact on policing); **Cittadini** and **Newton** (costing the proposals); *Crewdson*, assisted by **Newton** and **Carr** (preparing the business case for approval by the Police Executive Committee);

February, 1993-April, 1993: **Carr**, **Cittadini**, **Agnew**, *Carson* and *Burt* (evaluating proposals);

April, 1993-June, 1993: **Carr**, **Cittadini**, **Newton**, *Warner* and *Burt*, **Agnew** having left (evaluation of tender re-bids); *Crewdson* finalizes the business case);

July, 1993-August, 1993: **Carr**, **Cittadini**, **Newton** and *Burt* (negotiating a “preferred supplier”); *Crewdson* had been asked to take on the task of Acting O/C, Computer Services, a division which was in some disarray at the time, although he also continued to participate in the work of the Project Team;

August, 1993-December, 1993: a five-month hiatus imposed by Cabinet at the time of an election, with members of the team other than Carr assigned elsewhere;

December, 1993-August, 1994: **Carr**, **Cittadini**, **Newton** and, beginning in mid-May, *Burt* (proposal clean-up);

June, 1994-August, 1994: *Crewdson*, **Jacobs**, **Barnett** and **Carr**: Negotiating the contract;

September, 1994: Contract signed (Peter Doone of Police and Gowan Pickering of IBM “shake hands” on the agreement);

October, 1994: Carr submits the handover report to Deputy Commissioner, Peter Doone.

Note the absence in this chronicle of very much direct involvement in setting the direction for INCIS on the part of senior Police management. It is true that the INCIS

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team did report regularly to a Steering Committee chaired by Gray, with representatives from a number of divisions, but Gray departed in the summer of 1993, following a disagreement with Doone, at the juncture where the latter was promoted to Deputy Commissioner and named INCIS “sponsor.” It was Gray who had been the lead figure in guiding the INCIS team. His involvement in establishing the direction of INCIS, and assuring a link to senior management, departed with him. Doone, who became the project sponsor at this point, had, previous to his promotion to Deputy Commissioner, made himself mostly notable by his absence in the deliberations of the steering committee.

Several of the serving Police personnel seconded to the project were specialized in support services. The exception was a relatively brief participation by three inspectors, whose role was to look into the implementational implications of the system. In fact, until the arrival of Crewdson (who would draft the final version of the business case in May of 1993), there is not much evidence of direct management implication at all in the establishment of the parameters of the project: briefing sessions involving “senior staff” from headquarters and “representatives” from the regions early in the life of the project, in 1992; an evaluation conducted later in 1992 by the National Systems Steering Committee; and a recommendation to the Police Executive Conference at about the same time.

Writing the business case

The so-called “business case” insists strongly on the priority to be given to “operational policing.” It identifies the principal areas of development: criminal information (incidents and offences), case/investigation management (electronic files, decision support tools, messaging support), crime trend analysis, intelligence analysis (analysis of “soft” data from investigations), performance measurement (tracking police performance), and special operations (security, surveillance, etc.). It is specifically aimed to reassure Police management, and Treasury, as to the financial benefits to flow from the project. It will free up the time of officers through reduced paperwork, require less hierarchy and improved workflows. This alone, it claims, will result in savings of \$74 million a year. It will save another \$14 million by replacing Wanganui and NIS (the CIB

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system). It will reduce prosecution costs for Justice, and serve as a model to other government departments. It will generate overseas revenues of some \$45 million, over the life of the project. And it will strongly support, and enable, the strategic goal of Police to move more to community-based policing. It optimistically projects a net value of the project, over its lifetime, of at least \$336 million, over and above investment outlays.

Against these benefits, a lifetime investment in the project is estimated at no more than \$188 million, including development and implementation, training and operating costs. The actual capital investment (for technology) is projected to be \$88 million. As against these evident gains, the cost of doing nothing, with no additional benefits, is estimated at \$105 million.

The business case thus steers a path between the preoccupations of management and the front line. On the one hand, there are clear financial benefits, reductions in staff (particularly non-sworn staff), a reduced hierarchy, and better information for the assessment of personnel performance. On the other hand, there is the promise of a whole gamut of new tools to assist officers in the performance of their daily work, and the ultimate carrot: a serious reduction in the amount of paperwork required of police. And the project promises, beyond the narrow preoccupations of Police, to offer benefits to other government departments, notably Justice.

The business case document then presents a broad outline of how the new technology will work: from data capture (a variety of information gleaned by Police and entered through both desktop and mobile machines), to data storage (host sites with backup to assure continuity), to data retrieval and analysis (answering specific and generic queries), to working with a case file (essentially an electronic folder on a computer desktop), to analysis.

On the other hand, certain cautions are enunciated. It is, for example, a major investment, and will not be able to accommodate everyone's pet scheme. Hard choices will have to be made. It is an innovation, that will not be achieved without "significant changes in policies, processes and attitudes within the New Zealand Police" (although

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precisely what the changes will be is not developed in any detail). On the other hand, the text asserts reassuringly that “Police is better prepared now than ever before to undertake such a challenge.” It has “already identified many of the issues likely to be faced throughout the project and is actively planning to meet and address each and every one of those issues” (again it is not clear what those issues are, nor whom this cheerful assertion of competence is designed to influence, but it is presumably aimed at government, as well as management).

It also makes reference to a business process reengineering project being planned that will “change the way Police works to encompass the aims of the Corporate Strategy” (it is worthwhile recalling that 1993 is the year that Hammer and Champy published their BPR manifesto, so it is safe to say this project had not advanced very far at the time of the penning of the business case).

The business case document then shifts to the projected management of the development process. It deals with how to control change (notably additions that get tacked on as the project matures), issue resolution, and quality assurance. It proposes a two-year window for the “full roll-out of INCIS” from commencement to finalization. It comes down in favor of a “full consultative approach using prototyping and broad-based user involvement, with a small core project team.” It foresees a small core project team, using highly skilled people, thus assuring short lines of communication and rapid evaluation of results. Users will be involved in reviewing and confirming approaches, to test usability and functionality: focus groups, essentially.

There is, of course, no record of whether hard questions were asked within the Police Executive Conference when the business case was presented to it, but there is no indication that the project team were asked to make changes, or revise the case (note incidentally that the finishing up of the business case coincides with the appointment of Peter Doone as Executive Sponsor, and the departure of Gray, so we may safely assume this was a period of managerial transition). Instead, an Australia-based consulting firm, Ernst & Young, was engaged to pass judgement on the project description it laid out.

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The Ernst & Young report

The tone of the Ernst & Young report was positive. Police corporate strategy was “clear, logical and well documented.” The preferred tenderer’s (IBM/GCS) bid was “totally compliant with this vision.” On the basis of the identified costs and benefits (which the report does not question), “it represents a good business investment.” The project will be delivered and the benefits realized “with prudent planning and management.” All the potential benefits deriving from labor efficiencies “are well documented and defensible and relate directly to new technology and systems.” The estimated benefits even “appear to be weighted on the conservative side.” Furthermore, “the nature of Police work and culture is such that they will adapt naturally and willingly to new systems.” The review team, it concludes, “was impressed with the amount and complexity of work carried out on the technical side of this project as well as in the preparation of the business case.”

The Ernst & Young report then comments on the technology. It finds the client server architecture “sound, flexible and representing current industry trends.” The hardware, network and software is “technically feasible and relies on proven technology.” With respect to local area networks and workstations “the technology is leading but not bleeding edge and is suitable to the organisation hierarchical structure of Police in New Zealand.”

There are, however, cautions. First, in the report Ernst & Young points out that its advice is “high level” and needs to be backed up by more in-depth analysis. It questions the offshore component of the IBM proposal (development to be undertaken in the U.S.), which it perceives to be a significant (and avoidable) risk. The technical team, it says, should be located in Wellington. And while IBM is an experienced systems integrator, its track record in designing and implementing application systems is less impressive. There is a risk involved. It makes the curious observation that “a perfect contract will not necessarily commit the contractor to deliver.” If, it says, the delivery of the application system is closely linked to the delivery of the infrastructure, then there may be additional financing costs to be considered. The report also observes that the proposed object-

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oriented base of applications is an emerging technology “and must be managed accordingly” (we will come back to the significance of this observation shortly).

The Ernst & Young report also contains observations on how the project should be managed. It takes issue with the current Police view that managing the project should be the unique responsibility of an Executive Steering Committee, staffed by Police, with the contractor participating only on a request basis. The report proposes instead a jointly represented Steering Committee, consisting of the senior executives from both contractor and Police, plus the “two most senior hands-on project managers from each organisation. This is an essential formula for mobilising resources to getting things completed on time.”

How pertinent this latter advice will prove we will see later.

Such little evidence as we have would suggest that the Ernst & Young report was read and interpreted by Police senior management as an unconditional endorsement of the business case. There is no indication of any particular sensitivity to the less positive things that report had to say about the risks Police was incurring.⁶

The Police “vision”

The IBM/GCS consortium received a confirmation that it was the “preferred bidder” in August of 1993, after it had already spent upwards of a million dollars in preparing bids and responding to inquiries formulated by the project team. By this time, the “vision” of Police, as we have seen, had taken shape. Let us consider in what the INCIS

⁶ The role of the Ernst & Young report came in for comment in the later (2000) Ministerial Inquiry into INCIS. In the view of the Inquiry, the Executive Summary of the Ernst & Young report was more positive than the report itself. And yet it was the Executive Summary that Police seem to have relied on. The Inquiry comments “the report should have been read in whole” (implying it had not been). The Ernst & Young report (or its summary) figured along with the business case in a cabinet paper presented by the Minister of Police to his colleagues in August of 1993. Ernst & Young subsequently, in its advice to the Ministerial Inquiry, stated that the paper misrepresents the advice given in their report, by ignoring its critical content.

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vision consisted, by looking at the image of system requirements it was presenting to the vendor community.

First, it would have to be deployed system-wide. In essence, this meant that the new infrastructure would have to support everything from back-office accounting, to front-line case management. In fact, the focus would be on front-line, operational policing, not support for back-office work (hence the continuing emphasis on the “business” of Police). It would replace Wanganui, but go far beyond the old system in functionality. It would not, in other words, be a collection of off-the-shelf, already widely available, hardware and software products. It would have to be tailor-made for New Zealand Police. With its many innovative features designed to enhance police work, it would also be so state-of-the-art that it could subsequently be marketed world-wide.

Second, it would be multi-media based. It would have to accommodate a variety of modes of information display, including photographic images, document images, text, and electronically producing diagrams. These were called “metaphors for information presentation” (desktop, case file, forms) and they also included provision for maps, diagrams (transformation matrices, event flow diagrams, spreadsheets and plans, tables, slides, graphs and, eventually, video and voice). (Ten years later this flexibility is becoming a daily reality for users of the Internet, but in 1992-3, such a level of sophistication was ambitious, to say the least. Even now, these are technologies that continue to be in development.)

In addition, this multi-media capacity would have to be distributed throughout the system, since remote access was judged an essential requirement. In other words, it was expected that police officers could connect by modem from anywhere in the country, or wherever a telephone line was available. Furthermore, police officers should be able to enter information through portable – possibly voice-activated - devices that could be plugged into the system later, and the information downloaded onto the mainframe. (Again, this has now become an everyday reality, but it was advanced technology in 1992-3. The developers themselves admit that these are in many cases emerging

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Third, there were requirements for intelligence and crime trend analysis, performance measurement, and case management/decision support, including requirements for access on demand to open, active cases in the stations where the investigations were going on. Here again, the Project Team recognized that these requirements were still in a state of flux, and would have to be “fleshed out later,” as a part of a subsequent detailed (i.e. post-contract) analysis. Even more strikingly, the Project Team recognized that the integration of these “enabling technologies” would result in radical alterations in police investigative procedures, and would have to be fitted into a comprehensive program of Business Process Reengineering, to make sure that decision support was available where and when it was needed. Again, this would come after the contract was signed.

In short, the projected system would need to be failure-proof, manageable, proven, scalable, mobile, integrated, secure, easy to use, portable, modular, adaptable to new innovations as they occur, high performing, and product independent. All that, and future proof too! Nevertheless, the Project Team stipulates Police does not want to be the proving ground for what is sometimes called “bleeding edge” technologies, i.e. technologies that are still highly experimental. Yet in the same breath, they admit that there may be no site in the world with an equivalent mix of technologies. (In fact, many of the components being exacted were far from mature technologies, at the time.)⁷

Tension at the interface between the Police project team and the IBM team

David Cittadini was the team’s “techie.” He seems to have been fascinated by developments occurring at the cutting edge of information technology. It is probably

⁷ The Ministerial Inquiry of 2000 subsequently commented on this ambiguity. Although, in 1992, the team’s philosophy was not to be “first on the block,” and to select “approaches which can be seen and touched elsewhere,” the Project “did not hold to this concept,” which the Inquiry considered would have been the prudent course of action. The Inquiry report goes on to observe that “the technology and architecture referred to in the RFT was emerging and had not previously been used for a type of application similar to INCIS. It did not meet the stated intention of using proven technology.” (Chapter 4, p. 3)

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through his influence that one of the key elements in the Police “vision” – essentially its core – was a software solution based on object-oriented programming, which was being highly touted in academic computer science circles at the time, although it was not yet a mature technology, at the level of corporate practice. There are great advantages to object-oriented programming. Objects, once created, can easily be modified and reorganized. It is a more economical and flexible developmental philosophy, intuitively easy to use, at the interface. The only drawback was that *none of the vendors competing for the Police contract was proposing it as a core technology* for the very good reason that it was not, at that time, an integral component of their products.

Similarly, the Police “vision” conceived of an INCIS user interface that would be as close to human conversation as possible (for example, you could talk to it). Information would be presented as icons that represent real-world objects. But the team knew that this was not the industry standard at the time. In fact, voice recognition is still a “bleeding edge” technology.

It is thus not totally surprising that all of the original proposals submitted by bidders were “non-compliant in almost every area.” Only the IBM/GCS consortium came even close, and at the point the contract was about to be signed its proposal was adjudged by members of the Project Team to be a “if-worst-came-to-worst” solution, that would eventually be surpassed by Police.

The Project Team does not, however, seem to have read such non-compliance as a danger signal, or a sign that, just perhaps, the “vision” might be somewhat unrealistic. Instead, their response was to push the vendors to expand their own expectations. More than 1,000 questions were addressed to the IBM/GCS consortium in the first half of 1993. A year later more than 1,500 other issues had been raised with IBM (by Cittadini, Carr, Newton and Burt). IBM was by now expressing concern that it simply did not have the time or expertise to respond adequately to all the concerns of the team, however legitimate they might be in the abstract, and it saw the continuing interrogation as questioning the validity of its solution. Clearly, relations between the Project Team and IBM had become strained, even before the contract was signed and the project was

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initiated. Crewdson intervened to mediate the division, and get the negotiation back on track.

The view from IBM

Let us now consider the negotiation process in a different light, taking account of the situation as it may have appeared to the preferred bidder, IBM.

First, it is important to understand *who* the “IBM” was that Police were negotiating with: in human, as well as institutional terms. When Thomas Watson, senior, the founder of IBM, handed over the reins to the company in 1956, he split the enterprise into two parts. The company itself passed into the hands of Tom Watson, junior. But Watson senior negotiated a semi-autonomous status for the other half of the enterprise, that became IBM international, or IBM World Trade, under the leadership of the younger brother, Dick. IBM World Trade turned out to be a highly successful adventure under Dick Watson’s leadership (as was IBM under Tom Watson’s). It developed its own style and culture, somewhat distinct from that of the mother company in the United States. By the late 1980s, in fact, it was the profits from IBM World Trade, not those from IBM USA, that were keeping the company afloat.

IBM New Zealand was a component within IBM World Trade, part of the Asia Pacific region, headquartered in Tokyo. In the decade of the 80s, the trend in IBM was to move more aggressively into the systems integration business, which is essentially a service sector whose function is to combine existing components to work together as an effective whole. The man in charge of putting together the IBM bid, and of negotiating a relationship with IBM’s consortium partner for the INCIS bid, Government Computing Services, was Derek Bealing. Bealing was a line manager with experience in Hong Kong and other Asian countries, in integrating systems, before returning to New Zealand. But it is important to realize that at that time, IBM New Zealand existed as an autonomous unit (a couple of years later it would be absorbed into the Australia operation), but one that was modest in size. It was essentially a service company specialized in installing conventional systems into a variety of commercial and government operations.

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Taking on the challenge of responding to the Police RFT was thus asking the IBM office in New Zealand to enter uncharted waters (as we have seen was already the case for Police). They simply had no experience of putting together a proposal of the size and complexity of INCIS (which was, at the time, one of the top two or three largest projects IBM World Trade was engaged in, and indeed one of the top ten in the entire company, including IBM USA).

Problems within IBM

By 1980, IBM was so successful, world-wide, that it had become literally an icon of the American business establishment, somewhat similar to Ford and General Motors in the automotive sector. Its mainframes were the industry standard in computing, and were enormously profitable. Its position appeared unassailable. This impression of impregnability was enhanced further by the remarkable success of the PC, or Personal Computer, that appeared on the market in 1981. It too quickly became the industry standard. As the saying went at the time, no company ICT director ever lost their job for buying IBM.

If you looked more closely, however, you might have detected danger signals in the PC success story. For one thing, IBM had found itself unable to design and market a PC within the usual bounds of the development system. It was forced to set up a maverick operation in Baton Rouge, Florida, well insulated from its main operations, in order to accomplish its goal. The group broke with a number of religiously observed IBM traditions by, for example, going outside the company for key components. Furthermore, IBM did not itself develop the software operating system for the PC. That task was farmed out to a small, and relatively unknown, West Coast firm, called “Microsoft,” headed by Bill Gates. IBM’s temporary triumph in the PC market would shortly turn out to be a house built on sand.

The years that followed were to prove a lesson in humility for IBM. On the one hand, the maverick model of Baton Rouge proved hard to repeat. The special circumstance that favored its success at the beginning was that nobody within IBM, outside the project, really took personal computing very seriously. To those raised in the mystique of the

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mainframe, PC's seemed like toys, destined for a limited – although perhaps reasonably profitable - market. They could not imagine that, fueled by miniaturization, those same “toys” would shortly, within a decade or a bit, have several times the computing power of even the most high-performing mainframes of the 1970s. Nor that the PC market would have reached figures like 100 billion dollars in sales little more than a decade later. The Baton Rouge team was seen as no threat: a harmless, if possibly hair-brained, adventure into a new field. So when the original PC succeeded beyond the wildest expectations of even the most optimistic senior members of IBM management, personal computing began to be taken seriously, and the big corporate guns were trained on it.

What this meant, in practical terms, was that the company began to throw resources at developing a successor to the PC. And while this might seem like the most favorable of outcomes, it was actually the source of a host of problems. IBM had simply become so bureaucratic, during its fat years, that it had lost its ability to respond quickly and flexibly to innovation. The more technicians and programmers it delegated to a project, the slower the project advanced. Coordination overwhelmed innovation. The innovative spirit of a much earlier IBM had been stifled by approval chains, meetings, and internal turf battles.

The other facet of the PC phenomenon that initially escaped the mainframe specialists and their marketing departments was what was happening in software development. Programming, in a mainframe world, was something computer specialists did. The programmer occupied the vital role of intermediary between technology and user. In a PC world, this was all going to change, and very rapidly. Soon all the emphasis would be on application software to be marketed to a host of increasingly sophisticated users: an area where IBM had no special capability. When IBM set about developing new generations of PCs, therefore, it found itself still beholden to Microsoft. Its own adventures in software development served mainly to establish its reputation as a gang that could not shoot straight: deadlines missed, inferior products.

By the end of the decades of the 80s, relations between IBM and Microsoft were becoming increasingly strained. The breaking point was the inability of the two firms to

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come to an agreement on a new, and more powerful, operating system, OS/2, which IBM hoped to see become the standard for the entire industry, much as MS-DOS had once done. IBM was now treating Microsoft with profound suspicion, recognizing in the upstart firm a potential competitor, and no longer a dependent – and docile - supplier. By the end of the decade, the IBM-Microsoft association had essentially come to an end, and Microsoft set about developing its own all-purpose operating system, that would later be marketed as Windows NT (after the INCIS contract had been signed, it should be noted).

Police were thus entering into a relationship with a company that had seen its position of unquestioned dominance erode to such a point that its survival was in doubt by the early 90s. Companies such as Compaq and Dell had out-stripped it in the PC market, and its mainframe dominance was being eroded by firms such as Hewlett-Packard. In any event, the mainframe market was stagnant. Intel dominated the chip manufacture sector, and Microsoft was the undisputed leader in software.

This does not mean that IBM was incapable of developing and implementing a system that would have met the urgent needs of Police. On the contrary, it possessed more than any of its rivals, and already available in the South Asia and Australia region, the resources, and the know-how, for stitching a system together, using existing technologies, to suit a customer's needs: in a sense, exactly what Police needed, if they were to construct a national grid. What it did mean was that IBM New Zealand could not expect to rise to the level of the high expectations enunciated in the "vision" statement of the Police team headed by Carr and Cittadini. Except that, at this point, Fate intervened to play a determining role.

The lessons of the 1980s had not gone completely unnoticed at IBM. It had seen small but nimble firms, who could develop a product and get it to market in half the time the more deliberate procedures at IBM permitted, come to dominate the industry. Its own PC success, back in the early 80s, was accomplished by encouraging an in-house team of innovators to do their thing without executive interference. So as the 80s wound down, IBM was trying to stimulate similar innovative projects, but set up *within* the bounds of the enterprise, although loosely administered. One of those software development groups

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was known as SWAIG. It was located in the South West of the United States (Texas, in fact), and was headed up by Bill Bigley, who had developed a reputation for himself as a trouble-shooter: IBM's version of Red Adair. His group was supposed to be a center of creative programming within the IBM ambit. The programmers who worked there were often not full-time IBM employees, but freelancers, and the result was that there was a level of mobility that was completely at odds with the traditional IBM style and culture. But it claimed to achieve the results it aimed at.

Bigley and other members of his group arrived in New Zealand in the early 90s. They held out a vision of using advanced technologies – highly experimental technologies, in fact - to produce the INCIS core component the Carr-Cittadini team had been looking for: components to handle such tasks as case management, and workflow design. *And it would use object oriented programming.* Cittadini finally had someone who understood what he was talking about.

Bigley was a persuasive salesman. Not only could he talk with evident conviction and familiarity about the technologies he was promoting, he also claimed to have real hands-on experience in building these same case management workflow systems. It seemed to be precisely what was wanted: to make INCIS not just a fairly adequate infrastructure of terminals and networks, linking all Police operations, but the kind of visionary system that the planning team had imagined.

It was probably this promise that, more than any other factor, won IBM the contract. But there was a catch: from now on, the success of the project would be contingent on a factor that could not be completely controlled by the New Zealand IBM managers. They had become hostages to fortune: if SWAIG failed to deliver, the project would be in jeopardy.

Getting to contract: "Death Valley"

The negotiation process was a challenging experience from the beginning, for both IBM and Police. The Police planners were not at all hesitant at making their wishes known to IBM, including whom they wanted to negotiate with. There were also internal tensions within the IBM consortium since its partner, GCS, had previously been the

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privileged supplier to Police for the Wanganui operation, and thought it should have a lion's share in INCIS. On the Police side, there were political pressures from within Cabinet: one minister in particular who was actively promoting the interest of Microsoft. A company, a sub-contractor rejected in the winnowing phase of evaluating bids, took its complaint public. Winning the actual contract, and negotiating its terms, would, however, turn out to be a further, and even more daunting, challenge. Even today, accounts of the contract negotiation process are tinged with partisan fervor.

Police issued a formal Request for Proposals (RFP) in December of 1993 and March of 1994. IBM submitted its re-bid in May and June of the same year. At this point, IBM and Police entered into intense contract negotiations, culminating in the signing of the contract in September. It was an emotional time, described by one person involved in it as "almost intolerable, took over our lives, we were working eighteen hours a day."

On the Police side three figures stand out. The first is Colin Jacobs, who was the designated "contract negotiator." Jacobs actually came out of the technology sector, having worked for an international firm headquartered in Great Britain. He left the company to set up an independent enterprise, offering a contract negotiation service to private companies who were embarking on an ICT implementation. He often worked in tandem with New Zealand's most experienced solicitor in the area of ICT, Paul Barnett. Barnett specialized in the actual drafting of the terms of the contract. The third member of the team was Tony Crewdson, who had become by this time the driving force in the INCIS Project Team. Martyn Carr also collaborated in the contract negotiation phase, but in an advisory role.

Jacobs' negotiating style is notorious in New Zealand circles. He treats the process as theater. He stages walkouts: "Alright, gentlemen, we're out of here!". He fights for every yard. His favorite ploy is the "Death Valley" game. The idea is to wait until the supplier is well and truly committed: the choice has been made, and expectations are at their peak. The celebrations have already begun. The marketing people are happy, head office is delighted. Then you say to the supplier, "Oh yes, but there is this little matter of some fifteen million dollars." The supplier, if the tactic is successful, is squeezed, and will

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make concessions that in normal circumstances would not be forthcoming.⁸ Death Valley is the “vendor’s nightmare, the purchaser’s dream”: the time “when the vendor loses all control of the negotiation as the purchaser goes beyond closed doors to deliberate” (Barnett & Jacobs, 1993, p. 10). As Barnett and Jacobs remark, “a negotiating strategy which fails to establish a Death Valley is one which leaves a purchaser short-changed of concessions.”

IBM, for its part, was laboring under some serious disadvantages. For one thing, its New Zealand legal counsel lacked the experience of Barnett and Jacobs. It could draw, of course, on the considerable resources outside New Zealand, in Australia and Japan, but working at long distance has its own drawbacks. The burden of negotiations thus fell on Bealing, whose idea of how supplier-client relations should work was coloured by his belief in the advantage of partnering: working together in collaboration to produce the best result – a kind of win-win philosophy. Furthermore, there were some very mixed feelings within IBM World Trade as to the advisability of entering into a relation with Police on the terms that were being proposed. On the one hand, the sheer dimension of the contract was the drawing card. It was a time when IBM was not doing well in sales, and to capture a contract of this size was an alluring prospect. On the other hand, there were serious reservations as to the ability of IBM to deliver on its promises. Did they in fact have the products and design skills necessary to realize the vision of the Police team? Perhaps not. Certainly, the resources at the immediate disposition of Bealing, in New Zealand, were far from reaching the level expected. The success of INCIS would then be contingent on the design ability of a US center, SWAIG, which, institutionally as well as geographically, was outside the jurisdiction of IBM World Trade. And Police were making exaggerated demands, on, for example, total portability of INCIS to whatever

⁸ Barnett and Jacobs (1993) have explained their technique in a paper presented to the Wellington Computerworld Expo, July 14, 1993.

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Police were almost certainly not unaware of IBM's discomfort. They understood that IBM New Zealand lacked the resources to meet all their requirements. One demand they insisted on, then, was that IBM World Trade sign off, explicitly, as a corporation, on the contract: they wanted to be sure they had a "corporate commitment" from IBM World Trade. This was something that had never happened before. IBM World Trade is not an operating company as such: it operates through its different country organizations. So the President of IBM World Trade at Armonk, New York, was persuaded, for the first time in his experience, to sign the contract. Of course, before signing, his corporate legal advisors had to be involved, and the whole pile of paper, with multiple annexes, was shipped off from New Zealand. According to one of our informants, "it was the biggest pile of paper they had ever seen."

IBM New Zealand, meanwhile, was seeking its own kind of guarantees against failure. So much depended on the performance of the SWAIG group that IBM New Zealand broke with another established pattern, by exacting from a regional IBM manager in the USA a separate contract – a contract *within* the company - in which SWAIG promised to deliver its technology component, within the agreed price and time frame.

Finally, in September, Peter Doone, for Police, and Gowan Pickering, for IBM, shook hands on the agreement, and the negotiation had come to a successful conclusion. But there were residual effects. On the one hand, the contract negotiating team operated on

⁹ It was the retrospective judgment of the 2000 Ministerial Inquiry, incidentally, that IBM had been injudicious in entering into the contractual relationship, with so many unknowns unresolved at the time of signing. IBM's reservations thus had a solid basis in fact, but this is to ignore the influence of context (IBM's difficulties in 1992, when the previous CEO had been effectively eased out, to be replaced by Lou Gerstner). It also ignores the progressive engagement that becomes operative during a prolonged phase of negotiation. It becomes more difficult each day to walk away from the interaction: a fact that is well known to used car salespersons the world over.

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the basis of a suspicion of the vendor's motives: a giant of the industry, IBM, versus a naïve client in a small market, Police. The sense was that to prevent yourself being a victim of the IBM steamroller you had to be tough. IBM, on the other hand, was proud of its well-earned international reputation as a firm of integrity and quality, and, at least at the New Zealand end, wondered why it was being treated as the ogre. To IBM Police must have seemed like the client from hell. Some of these feelings were to persist, and to play a role in the subsequent evolution of the INCIS project. Police continued to be suspicious of IBM's motives; IBM became increasingly disillusioned with what it took to be the hostile climate in which it was being asked to implement INCIS.

There was one positive side to the negotiations. The two people who would be directly involved in the realization of the new system, Tony Crewdson, the future INCIS director, and Derek Bealing, had got to know each other quite well during the negotiation process, and both were committed to partnering.

The KPMG Report (June, 1994)

In June of 1994, as the two parties were entering the final phase of contract negotiation, Police engaged another consultant firm, KPMG Peat Marwick to evaluate the "current state of play" regarding Police negotiations with IBM. The tone of this report is in striking contrast with that of the earlier Ernst & Young analysis of the state of the INCIS project. For KPMG, INCIS represented "an extremely large and complex undertaking, from both a technical and business perspective." It saw the project as presenting a "wide variety of risks to Police which needed to be managed in a proactive manner." As the report points out, the INCIS project represented more than changing some technology; it sought "to change the way in which Police conduct their business." Given that, in the opinion of KPMG, INCIS implies a good deal more than new technology, the Police should, in its opinion, be asking themselves if they are really ready to embark on such an adventure, before signing any contract. "Do," the report asks, "police currently have the confidence and commitment to achieve the successful delivery of INCIS and its integration with other Police initiatives?"

The report goes on to pose a whole series of probing questions:

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- Who currently “owns” the INCIS project?
- What awareness is there within Police of what INCIS will deliver?
- Is it considered by the wider organization to be a business change or technology project?
- Has adequate consideration been given to the resources Police need to commit to INCIS?
- Bearing in mind other concurrent initiatives within Police, can the required resources devote sufficient time to the project?
- Has enough emphasis been placed on the delivery mechanism for INCIS as opposed to the technical solution?
- Do Police have sufficient confidence in the key resources proposed by IBM/GCS?

The comment that is made is this: “the above questions highlight the current knowledge gap within Police at this relatively early stage of the INCIS project.” And it warns that because the pace is likely to be dictated by the vendor who is duty bound to respect the milestones imposed by the contract, “Police ‘ownership’ of the project may not be achieved.” The issue, as KPMG put it, was not whether or not to sign a contract, but “what they sign a contract *for* at this point in the project life cycle.”

The mood has clearly shifted in the year since the business plan was drafted, and Ernst & Young submitted its much more upbeat assessment of the situation.

Actually, KPMG had initially been engaged by Police in January of 1994 to assess the debate over the choice of a software platform: IBM’s OS/2 or Microsoft’s Windows NT. This issue had arisen principally because of the intervention of a member of Cabinet, the Minister for Information Technology, Mr. Williamson. Williamson, who had met Bill Gates, was an advocate for the Windows NT system, and made his views known quite explicitly to Police. KPMG was brought in to adjudicate, and it confirmed what the INCIS Project Team already knew, namely that, as things stood in 1993-4, OS/2 was operational and provided a sufficient platform for the technology of the time, while

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This report is incomplete, the first part of a more ambitious analysis and is likely to be considerably revised before it is ready for full publication.

Windows NT was just coming onto the market, and had not yet proven its value as a support for a large integrated network. The consultants reconfirmed this opinion in their subsequent June report. Nevertheless, as we will discover, this remained one of the question marks that punctuated the INCIS plan.

There were, in other words, two huge question marks around the contract negotiation process: Was Police actually ready to take on a project of this dimension? and Could IBM actually deliver what was necessary to make INCIS a reality?

The handover report

With the signing of the contract, the role of Carr and Cittadini in developing INCIS came (perhaps reluctantly) to an end. Doone, now responsible for INCIS (and two years later to become Commissioner of Police), requested a handover report from Carr, “warts and all,” as Doone would later put it to the Ministerial Inquiry. The result is a curious – even paradoxical – document, coming as it does from the leader of the team that had been the principal agent in establishing the nature of the Police intention, over the 3-year life of the project.

First, it emphasizes that, as the report puts it, “IBM struggled to come to grips with the Police vision for the overall architecture.” The report goes on to say that: “IBM continued to state that the concept of a distributed object computing environment was impossible to achieve.” Carr acknowledges that “*this may be the case with today’s technology* [our emphasis] but the Project Team felt that it was important to *paint a picture of how INCIS would develop over the long-term.*” So while Police “is willing to accept the proposal by IBM as the base solution,” “IBM must share the overall vision held by the Police.” It goes on to say that “IBM has not provided resources on the project familiar with a distributed computing environment.” And “IBM has continued to de-commit from developing certain components of the proposed technology solution. Police must be vigilant to ensure this does not continue to happen.”

Reading these remarks, written almost immediately after the contract had been signed, one is tempted to pose a number of questions. For example, where did the “Police vision” come from, that is so strongly emphasized? Weren’t, in fact, the Carr-Cittadini

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team the authors of the Police vision? Does this not then imply (especially in light of the interrogations KPMG had posed earlier in the year) that the “vision” is being *projected onto* Police management, rather than *deriving from* the latter?

It is clear that INCIS, from the beginning, was inspired by the need to implement a national, integrated network of information and communication technologies, but we don't understand from the report that it is *this* requirement that IBM are said to be taking exception to. What the vendor does find unrealistic, on the evidence provided by the handover report itself, is the *technology* specification on which the Project Team was strongly insisting. But the author of the handover report himself admits that the concept of a distributed object computing environment “may be” impossible to achieve “with today's technology.” Similarly, the report states that “Police has a view that INCIS is mobile” but IBM is proposing a desktop-based system. And while “Police requires a single, integrated, portable Systems Management System,” there are “very strong reservations in the Project Team that IBM will be able to achieve this.” And again, although “Police always required” remote access to be “a base part of INCIS,” IBM de-committed from this. They are also “making advances” in providing a portable solution: it is an area “where IBM will find it difficult to meet the requirements.” Again, “The Process Manager does not exist anywhere around the world and is perhaps the most complex part of INCIS,” and yet “IBM was unable to demonstrate through the evaluation process how this would work or how it would build it.” And “It is clear that IBM did not have an understanding of the actual impact of INCIS on the proposed Police Station-based Servers and End User Systems.” And “Police required ‘seamless’ back-end integration to the existing WCCS, including CAD and the Police traffic systems which were to remain on Wanganui. IBM has not proposed this.” And on the issue of overall integration, “The Project Team was unable to ascertain from IBM how this integration would be achieved and was left feeling uneasy. IBM needs to be managed to ensure that INCIS is an integrated system.”

Once again the issue of object-oriented technology is raised: “IBM has proposed the use of the Object Oriented Iterative Development Methodology (OIDP) which, it freely admits, it has very little practical experience in using on any projects, let alone one of the

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size and complexity of INCIS. There is a significant likelihood that the methodology may lack the rigour, applicability and support necessary if IBM is to overcome significant difficulties in implementing INCIS.” (Actually, our careful reading of the available documentation and our interviews suggest that the OO requirement was initiated from *within* the Project Team, although perhaps stimulated by Bigley’s presence in New Zealand, but here it is being attributed to IBM. It was certainly not part of the original IBM New Zealand “vision” since they clearly lacked the means to realize such an ambitious objective.)

Consider the following analogy: would you buy a house if your specialist advisor was submitting a report to you in similarly negative terms as appear in the handover report? Probably you would think twice. Why then did Police management sign the contract they did? And indeed why did IBM sign the contract they did, knowing that their client already had the reservations it had? We will return to consider these questions shortly.

The handover report, however, is hardly more kind when it comes to characterizing the commitment of the other partner to the agreement, the Police themselves. The report notes that INCIS will result in major changes within Police, including a flattening of the hierarchy and the civilianising [sic] of Police, implying needs for recruitment, training, career planning and remuneration, as new skills are required, and new career paths open up. And then there is the problem of coordinating with other Police IT projects. Engineering Services, for example, are taking over responsibility for the Wide Area Network, and this opens the door to IBM to renege on non-performance of certain obligations (as we shall see would later be the case). If INCIS is to “effectively set the IT infrastructure for the organization for the next 5 years” then the question arises as to how other projects would be integrated into INCIS. Also both first releases of INCIS suppose output from the exercise in Business Process Reengineering Police were proposing to undertake, but “to date, Police has yet to commence detailed work in this area. Police is likely to be in breach of contract at least as far as Release 1 is concerned.”

As the report observes: “To date Police has been very slow in making decisions. This appears to be worsening, rather than improving, as evidenced by the lack of pro-activity

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surrounding the next phases of the project, including the BPR activities. Part of this problem stems from *a lack of understanding of the issues involved*, particularly the judgement required to select a direction based on a number of grey alternatives rather than clear black/white decisions, part of *a lack of focus by senior management* engendered by the vacancies of IT Director and O/C Computer Services, part from *the highly politicised nature of decision-making in Police*. This *lack of timely and appropriate decision-making* has already meant that Police is in breach of the contract in terms of BPR, staffing and accommodation. Unless it is resolved urgently, the project will fail.” [our emphasis]

Furthermore, it claims that the lack of progress on a variety of issues within Police “betokens a lack of commitment on the part of the organization.” “The organization must quickly get down to work otherwise the project will shortly be in a crisis.”

This is no more than a sample of the “issues and concerns” that occupy fully 24 pages out of the 50 of the entire report. One dominant theme is repeated: the IBM team lacks “understanding” of either the technology or the policing environment, is not committing sufficient resources, they would have to be carefully “managed” by Police to make sure that they didn’t find a way to weasel out of their obligations. Police, on the other hand, are disorganized, “commencing the next phase with minimal knowledge and understanding of the project” (!). They are “jacks-of-all-trades” who “tend to underestimate the skills required to perform certain tasks.” And, of course, there is the political reality: “if either party is in substantive breach of the contract at any of these review points it is likely to have serious political repercussions.”

Let us return to the question we posed earlier: why, knowing what they knew, did Police enter into contract with IBM?

There seem, in retrospect, two possible explanations. The first has to do with politics. To persuade the Government of the day to invest in such an ambitious project must have seemed very appealing to senior Police management, who faced the usual budget crunch in an era when governments were tightening the purse strings. At the level of the individual officer who was sponsoring the project the perspective would presumably

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have been particularly attractive. The temptation to trim a bit – to understate the difficulties and overstate the benefits – may well have been irresistible, especially to someone whose temperament is normally sanguine. So perhaps senior management was not especially motivated to look too closely at the incipient problems, particularly if the author of the handover report is right in attributing to police officers a pragmatic disposition to disregard complications, on the assumption that is just a matter of seeing it through: toughing it out.

The other explanation is that senior Police management simply did not know about the risks. We have no indication that Carr ever reported to Doone verbally on the concerns that are voiced with such urgency in the handover report. It seems strange that he would not have, given that Doone became sponsor in 1993, a year before the signing of the contract. However, this was also when the chairman of the Steering Committee, Don Gray, left and it was at that point that the Government declared a moratorium on all activities associated with INCIS. The Project Team literally disbanded until the beginning of 1994. And we do know that Doone was under pressure to initiate the organization of a post-contract team from a point well before the contract was signed: to assign personnel, obtain space, etc. He refused on the grounds that such action would be inappropriate before the contract was signed (leading the author of the handover report to observe that Police were already in breach of contract from Day 1).

Perhaps, then, Carr was not encouraged to bring his concerns to the full attention of the project sponsor. That this may have been the case is suggested by an odd incident that we uncovered in the course of our interviews. It will be recalled that Doone was the one who commissioned the writing of the handover report. Nevertheless, years later, when questioned by members of the Ministerial Inquiry, both Doone and Crewdson claimed not to have read the report until well after 1994. We have no reason to doubt the veracity of the testimony of either. But in Doone's case, this is strange, since the report was addressed specifically to him, dated the third of October, 1994. What may then well have happened is that it sat on his desk, unread, until the arrival of Greg Batchelor as the new head of Police ICT in November. Doone would then have passed the report to Batchelor with the recommendation that he read it, and pass it on to Crewdson. Batchelor, for his

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own reasons, chose not to give Crewdson access to the report, although he himself seems to have paid close attention to it. So in a certain sense Police did have intimations of the problems to come but chose not to pay attention to the danger signals.

As we have already seen, IBM was, for its own reasons, also ignoring the danger signals.

There is another aspect, however, in which the handover report of the Project Team was itself a contributor to the very hazards which it went to such pains to point out.

The rhetorical stance of the handover report

Whatever else the handover report may or may not have accomplished, it established a tone. On the one hand, a repeated theme is what Police want, expect, insist on, etc. A certain form of expression occurs repeatedly: “Police wishes,” “Police expects,” “the Police vision,” “Police requires,” “Police has a view,” “Police has a requirement,” “Police considers,” “Police has registered its concerns,” “Police’s approach,” “Police will be building,” “Police needs,” “Police established a strong change control procedure at the commencement of the project,” “it behoves Police to keep itself up to speed,” and so on.

The image of police that emerges from the report is that of pro-activity. Police comes through as a strong actor, with needs, attitudes, vision; it is a builder, an establisher, and someone who must stay alert not to be taken advantage of. This is a flattering image, and presumably one that was designed to both appeal to the Police ego, and to cast a favorable light on the authors of the report, who have been the ones who enunciated the vision. It is true that there are sections where a less flattering picture is drawn, of an indecisive Police management, and an organization rife with jurisdictional rivalries, but it is the first image that sets the tone for the report.

The image of IBM that is painted by the report is quite different. Consider the language used to describe the supplier: “IBM’s receptiveness,” IBM’s ability to deliver,” “IBM struggled,” “The approach taken by IBM is one of coercing together disparate applications,” “IBM continued to state that ...a distributed object computing environment was impossible to achieve,” “IBM has not provided resources,” “It will be important to manage IBM,” “IBM has continued to de-commit,” “ It is important to

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manage IBM,” “IBM de-committed ... This has provided IBM with an opportunity to increase significantly the cost of INCIS,” “ This is an area where IBM will find it difficult to meet the requirements,” “the high eventuality that IBM will not deliver a portable system,” “this gives IBM an opportunity to use the WAN as an excuse for non-performance,” “IBM was unable to demonstrate,” “IBM did not have an understanding,” “There is a likelihood that IBM has significantly over- or under-configured these components,” “IBM has not provided staff,” “IBM has not proposed this,” “Police needs to ensure that IBM does deliver,” “IBM needs to be managed,” “IBM found it very difficult,” “IBM will need careful managing throughout the project.”

The image of IBM that is projected by the handover report is one of a mixture of incompetence, on the one hand, and untrustworthiness on the other. Again the appeal to the Police proclivity to suspect the worst is transparent. And, in parallel, an alibi for the Project Team itself is established: if IBM “fails” to deliver, it will not be the fault of the vision, but of the vendor (and secondarily of Police themselves, to the extent that they are unable to get *their* act together). It is perhaps not surprising then that the report is said to have been described by one member of the Project Team as a “Get Out of Jail Free card.”

There is no evidence, as we have seen, that the handover report strongly influenced senior Police management. In fact, the highly critical remarks in the report with respect to Police inattention, lack of leadership and understanding, and its politically charged environment, make it very probable that the Project Team had *not* had much success in influencing Police management. Nevertheless, the report, as we shall see in a subsequent phase of INCIS, did have one interested reader, who seems to have fully absorbed its message: the Director of ICT, Greg Batchelor. He, however, was considerably more skilled in transmitting his attitudes to management than the Project Team had been. The tone of the handover report came, increasingly, as the project went into its development phase, to be reflected in Police relations with IBM.

One month after the handover report had been turned in, Police and IBM nonetheless signed a partnering agreement, thus committing themselves to a collaborative, cooperative approach to developing INCIS. Clearly, the managerial intention of Police

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was already conflicted, even before the INCIS technology development process had been initiated. On the one hand, the attitude to IBM, as projected by the handover report, and confirmed by the aggressive stance taken by Police during the contract negotiation phase, was adversarial. The groundwork had been laid for a continuing wrangle over what IBM was committed to by the contract, and whether Police had lived up to its side of the bargain. On the other hand, the partnership agreement committed the two parties to a fully collaborative working relationship in the actual development and implementation of the system. These are two very different kinds of translation of the Police<->IBM/GCS interface. As we will discover, they are also recurrent themes in the subsequent evolution of the INCIS project.

The question of the fixed price contract

The Ministerial Inquiry headed by Francis Small, some six years later, directed some of its strongest criticism of the contract negotiation process to the concept of a fixed price.¹⁰ To insist on a fixed price for a project with as many unknowns as INCIS was to place it in a straitjacket. Given the imponderables we have already described, such as making INCIS dependent on a yet-to-be-developed core technology based on object-oriented programming, there was no possible way to estimate the actual costs of the project with any accuracy. Furthermore, although the Project Team took considerable pride in its ability to probe the weaknesses of the IBM proposal, it did not provide clear guidelines to designers (as the Ministerial Inquiry also observed). If you consider the actual participation of front-line police officers (other than Crewdson) in the development of Police requirements, it comes down to a six-month contribution by three inspectors, and they were mandated to look into the practical implications of implementation, not the design parameters.

One of IBM's rivals, Andersen Consulting, had, in its bid, insisted on what is called a High Level Integrated Design, or blueprint, as a pre-condition to submitting a detailed budget. Such a first stage in design, to be completed prior to submitting a full tender in

¹⁰ The KPMG report expressed similar reservations, prior to the signing of the contract.

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response to the RFT, would add specificity as to the functions the system would actually have to support. As it turned out, a large part of the first year of the partnership between Police and IBM would be spent on precisely this task of making the work of policing more transparent to the designers. By signing a fixed price contract, however, Police effectively guaranteed that, later, it would find itself in a dispute with its supplier over how much of the work was “within the scope” of the contract.

The concept of a fixed price contract was, of course, not an invention of Police. It was imposed by Cabinet as a condition of the grant it had authorized. The idea may have seemed attractive: a guarantee that Treasury would not subsequently be called on for additional sums that it had not budgeted for. The actual result would turn out to be even worse: the failure to realize the gains its considerable allotment of government resources supposed were forthcoming. Save a penny, lose a pound, you might be tempted to say.

It is interesting, in reading the handover report, that this kind of consideration is never raised. It is clear that the author of the report understood quite well the hazards of the project, and the fact that much of what was predicated by the Police “vision” consisted of non-existent (at the time) emerging technologies. And yet there is no suggestion that the prudent course of action, and one Police might well have urged on Treasury, was a more carefully staged process in which a basic network, such as that which IBM was capable of implementing using current technology, would be created as an initial achievement. Perhaps Cabinet would not have been receptive to such a proposal, but we could find no evidence that it was a way of proceeding that Police had urged on the Government.

The overall impression that is left by the handover report is thus one of a basic lack of realism, conjoined to an incipient paranoia where the supplier IBM was concerned.

How successful was the translation process of bridging Interface #1?

The question we set out to answer, in looking at the documentation dealing with the pre-contract phase, was whether an effective translation had been achieved, resulting in a sufficiently harmonious co-orientational relationship, linking Police to its preferred supplier, to achieve the complex objects the project supposed. It will be recalled that we

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treat the term “translation” as having two levels of meaning. The first is essentially rhetorical. In our analysis to this point, we have been trying to understand whether the texts that were generated, leading up to the contract, effectively communicated the intention of Police Management to its future ICT partner, the IBM consortium and, vice versa, how IBM’s proposal was read by Police. The second concept of translation is more political than rhetorical. Our research aimed at comprehending to what extent a critical mass of interests, both within Police and IBM, had coalesced to the point where it could be said that there was an effective community of interests dedicated to the realization of INCIS.

With respect to this second kind of translation, it is not enough for the supporters of the project to pay it the lip service of going along with it, or at least not actively and openly opposing it. For translation to be effective, the relevant interests have to be locked in: committed. We will know that commitment has been achieved when a co-orientational unit has formed, within which the partners are joined by their submission to a common fate. This will occur when it is clear that the intention of one partner, A, has been effectively communicated to the other, B. B must then be clearly understood to be an agent of A – so clearly, in fact, that B’s failure becomes an implicit admission of A’s failure, as well as its own.

Only then will we be able to say the translation is realized.

Since we are dealing with two distinct communities, Police and IBM, each characterized by a different set of practices, and accustomed to using a language that relates to the exigencies of these practices, this supposes a translator. For INCIS, the Project Team was clearly the designated agent, employed by Police on a contractual basis, whose role was to effect the required translation. When its work was done, the intention of Police, as formulated by its management, would be made clear to the consortium, and the latter’s promised performance would be seen to be acceptable to Police. If the Project Team were successful, the result would be an A-B-X co-orientation of the kind shown in Figure 3, where IBM/GCS would act as an agent to realize the Police intention with respect to the common object of interest, INCIS:

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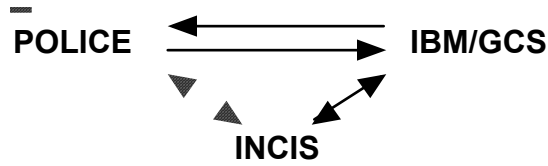


Figure 3. The co-orientational basis of the contractual Police/IBM relation.

Obviously, the concept of INCIS itself, as an object, would imply a transformation of the workworld, and this would also have to be accounted for in the translation.

In arriving at their objective, the Police Project Team, staffed (initially) by consultants from a third party, Price Waterhouse, would act as translators (Figure 4):

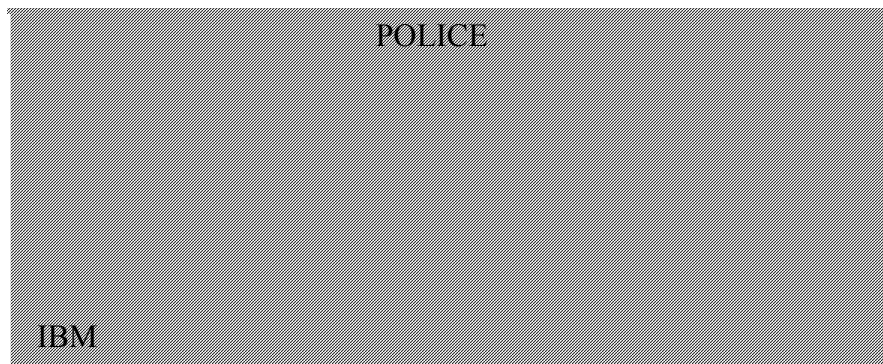


Figure 4: Visualizing the role of the Project Team as translator.

PRELIMINARY DRAFT: NOT FOR ATTRIBUTION OR CITATION

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Practically speaking, the Commissioner of Police and his executive committee would have to be convinced that the INCIS plan (called its “Business Plan”) was an explicit expression of the organizational intention. IBM and its partner GCS would in turn become aware that its proposed course of action and development plans were in accordance with the wishes of Police. And, in the background, there would have to be an understanding that the plan the Project Team had formulated corresponded realistically to the needs of the workworlds of policing, and to the parameters fixed by Treasury, and the Cabinet (this latter link is not shown in Figure 4, but remains an implicit framework throughout).

How successful was the Project Team in making the translation?

Evaluating the Project Team’s achievement as a translation

The answer to the first question, to what extent the Project Team succeeded in giving expression of the managerial intention of Police in a form that would be comprehensible to the very different conceptual universe of system designers and implementers, is not clear. The handover report, for example, devotes about a third of its fifty some pages to describing the Team’s own work, its organization and its widely praised achievements. However, as we have already noted, there is little evidence in this description of the development phase of much input from Police management, other than that of the Steering Committee. But the Steering Committee was headed up by Gray, who left Police in 1993, at the point when a “Sponsor” was appointed. Since we know that Gray and Doone, the Sponsor, were in disagreement at that time, and since there is no evidence that we can discover of a serious effort by the Team to assure that the perspective they had been developing was in harmony with that of the new sponsor, it remains unclear that an effective translation of management’s intention was any longer being realized.¹¹

¹¹ It is worth while recalling that Doone’s appointment came immediately prior to the ban imposed on INCIS, and the temporary dissolution of the project team for a 5-month period. When activities again resumed in 1994, they were centered on the formulation of a new Request for Proposal, evaluation of IBM’s proposal, and the negotiation of the contract. Such a focus on immediate objectives may well have precluded much in the way of long term strategic thinking, which had preoccupied earlier phases.

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What *is* clear, from the description of the business requirements, is that they are not framed in terms that we would recognize as particularly managerial. There is no mention, for example, of the impact of INCIS on administrative practice, other than some general references to a flatter hierarchy. The issue of how managerial control would be affected by the implementation of the system does not arise. Nor is the vexing question of personnel reductions addressed, other, again, than in general terms. The issue of how to cope with possible union opposition is not to be found in the document. Nor is there much mention of alterations to back-office operations such as accounting, human relations, planning and finance that might follow from the implementation of INCIS. These are all considerations that were central to the business case, but find little echo in the handover report.

What is presented in some detail is a wish list of technology to support what the Team apparently took to be front-line police activities: multi-media to make available sophisticated images and data to investigators, mobile access to the system from Police engaged in field operations, and smart case management systems using the latest in decision support systems. These are advanced as what Police might want, but since the key figures in the Project Team had no personal experience in policing, and since it is hard to find evidence in the report of a systematic inquiry into actual front-line preoccupations, it remains unclear *whose* intentions are actually being incorporated into the various Requests for Information, Proposals and Tender.

It seems at least plausible to speculate that, rather than translate faithfully the intentions of management, the Project Team substituted its own interpretation of what Police wanted. There were certainly those among whom we spoke to who thought so.

If this is the case, then the question must be raised as to why Police management allowed its intention to be railroaded. To answer this question, we need to look more carefully into the structural realities of a management such as that of Police.

First, there is no indication that there *ever was* a single “intention” that could be said to be that of Police management. On this score there is, for example, no reason to doubt the handover report’s observations, nor those of the KPMG report, on the lack of

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understanding and focus on the part of senior management. Nor should we ignore their allusions to the multiple interests within Police that might effectively sabotage the project. This may seem to be a damning criticism of Police leadership, but such a lack of precise focus is in fact typical of many, if not most, senior managements, and many, if not most, organizations.

As we have seen, the progressive development of the INCIS project was initially shepherded by Don Gray, in his role of head of finance, planning and ICT, and as chair of the INCIS steering committee. Once the decision to proceed with a system such as INCIS had been taken (presumably in the late 80s or early 90s) then management would have delegated the responsibility for the project to an individual officer, in this case Gray. He would have been authorized (if not specifically requested) to set up a Steering Committee, to assure cross-functional participation and links within the administration. From time to time, INCIS would then come up on the agenda of the executive management committee. In some cases, it would simply appear, as one item among others on the agenda, as a report on the project's progress. In others, there might be a decision to be taken, following a recommendation from the Steering Committee, and its chair. Gray might be asked to speak to the matter on the agenda, or his point of view might be expressed by a Superintendent or Deputy Commissioner. (It is clear that the members of the Project Team, as hired consultants, would not be present.)

Such senior management meetings have a basic protocol. They may occasionally be boisterous, and contentious, and tough questions may be posed, but in the end there is an understanding that others' turf must be protected, if only because this is the best guarantee that one's own turf remains free from too much interference. Even if there was serious opposition to INCIS, its effect would be muted by the reality of how management works. Because this is so, the role of someone such as Gray would be indispensable to a continuing focus on the project. Doone's appointment as Sponsor in 1993, and Gray's departure shortly afterwards, created an anomalous situation. By mid-1993, the project was to all intents and purposes set in the pattern it would assume in the subsequent contract negotiations (IBM had already received notification it was the preferred supplier). But Doone, although an occasional member of the Steering Committee, had no

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particular commitment to the plan the Project Team had developed. Whatever the flaws it incorporated, Gray was committed to the development of INCIS, and through his agency, so was Police. Doone's commitment is much less clear. He presumably had other fish to fry, as well. And, as the KPMG report points out, there were unfilled vacancies in both the Computer Services and Information Technology directorships: a curious vacuum at such a critical juncture.

Translating IBM's commitment

One feature of the handover report stands out above all others: *At no point is IBM's proposal ever actually described.* We learn, in considerable detail, what IBM is *not* intending to do, what it does *not* understand, and where it has "de-committed." But what the company thinks it *could* supply, and *why it thinks such a solution might be adequate*, is never broached, much less explicated. Furthermore, by its repeated probes (thousands of questions, demanding a detailed technical answer), it would seem that the Project Team was intent on making clear to IBM that it had not understood the Police intention. It certainly set out to convey to the Police management, in the handover report, that IBM had not understood its intention.

This is not to say that IBM was not experiencing its own version of mixed motives. Left to its devices, IBM New Zealand would have presumably implemented a conventional package of already existing components, a "solution" with which it was already quite familiar. Its expertise was in system integration, not software development. The system would presumably have worked well enough, but it would not have been state-of-the-art, and would not likely have met the objective of a world-class technology, ready for international marketing. At the moment it was forced to abandon this essentially pragmatic approach, the complexities of IBM as a very large constellation of often contradictory developmental philosophies began to come to the fore. Now the IBM Project Team was obliged to rely on elements within this huge corporate empire with which it was quite unfamiliar, and which it could not easily control. The "vision" of the Police Project Team seems thus to have successfully muddied the intention of IBM, as well as that of the Police themselves.

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Translating the translation

In summary, it cannot be asserted with any assurance that the Project Team managed to translate the intention of Police into a set of technical specifications that would be understandable to IBM, and to which it could respond with assurance. It may even be possible, on the evidence, that the team substituted its own interpretation of the Police intention, and did so in such a way as to magnify the difficulty of any New Zealand supplier, including IBM, in interpreting it. On the other hand, it successfully translated the IBM proposal into a version that interpreted the latter's "solution" into a failure to comprehend the Police "vision": from co-orientation into disorientation. Neither rhetorically, nor pragmatically, can it be said that the resulting "translation" thus constituted a basis for a productive co-orientation, especially taking into account the mixed motives, internally, of both Police and IBM. Since fully half of the handover report is devoted to all the ways in which co-orientation has not been successfully achieved, it seems, paradoxically, that the members of the Team who were now ending their association with INCIS were also conscious of this lack of success, even as they cite their work as a great achievement, and an exemplar of its kind.

As we have already noted, the handover report did not seem to have had much of an immediate impact on Police management, if it was read at all. Since the consultants were no longer associated with a prestigious international firm such as Price Waterhouse there may even well have been the sense that their advice could be safely discounted.

However, as we have also pointed out, there was one interested reader, and he would shortly emerge as a central figure in the INCIS chronicle: the Director of ICT, Greg Batchelor. As it would turn out, he would not only pay attention to the report, but would in turn become *its* translator in his dealings with both the management of Police, and the IBM development team. What Carr and Cittadini could not achieve, his quite different position in the hierarchy, and his bureaucratic skills, would allow him to accomplish. Eventually, the "translation" that the earlier Project Team had made would become the standard interpretation of the Police-IBM co-orientational relationship.

But that is part of the story that remains yet to be told.

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There is, of course, another reason why management might find it hard to embrace the kinds of risk that technology innovation engenders: the role of management as translator.

Translation, or translations?

Our emphasis up to now has been on the translation that was necessary for Police to enter into a co-orientational relationship with the vendor consortium, IBM/GCS. But this is to ignore other implications of the translation paradigm, namely the translations that are occurring within the respective partner organizations (Figure 5).

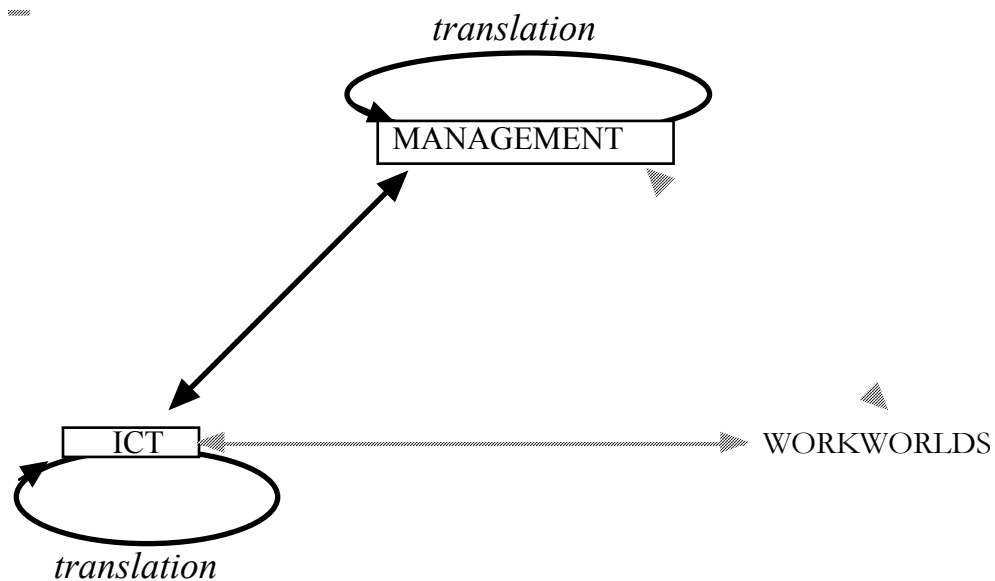


Figure 5. Processes of translation internal to Management and ICT.

Consider the situation of Police. As both the KPMG and the handover reports observe, there are multiple interests within Police: the existing network technology group, for example, who see in INCIS a possible way to realize some of their objectives, or the Human Resources department, who are eager to take on BPR as part of their

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province, or another group, for whom computer-assisted dispatching is a priority. The regions all have their agendas. The executive committee, presided over by the Commissioner, becomes a primary instrument for the translation of these multiple interests into a collective intention, that is recognizable as that of Police as a whole. The Commissioner comes to think of himself as the prime translator. When Gray departed, INCIS ran the risk of ceasing to have a persuasive agent in the senior managerial translation process. Doone was initially its sponsor, but on his appointment to the rank of Commissioner, by his own admission, his preoccupations moved elsewhere. INCIS sponsorship was delegated to Deputy Commissioner Barry Matthews, and he seems to have faithfully carried out his mandate, but it was not ever, apparently, a project that he felt fully comfortable with – certainly not one he could be said to have “owned” in the way that Gray had. So it is probably fair to say that, with respect to INCIS, the intention of Police never quite crystallized.

IBM encountered its own internal issues of translation. There were the IBM New Zealand group, sales departments, counsel, the Asia headquarters, and the stateside software programmers. And IBM’s problems of translation would be intensified as the project advanced, and control over the project migrated from New Zealand to Australia.

However, as we will discover as we examine the second phase of INCIS, at the point where the salient interface had become ICT and the Police workworlds, there *were* people who were in fact ready to embrace the risks.

Montreal, June 2, 2002

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