MENDHURST

(This story is a memoir based on recollections of actual events. Events and conversations have been recreated to the best of the author's memory. The names, details and identifying characteristics of some people and places have been changed to respect the privacy of individuals.)

The World's Biggest PC

By John Mendzela

Dateline: Los Angeles Airport, December 1986

The United States Customs officer stared at the memory board with deep suspicion. "I've never seen anything like this before. Show me how it works!"

"I can't do that easily", Mike told him. "You have to open up the back of the PC, and slot it in from the top. Like this…", he tried to demonstrate.

Mike couldn't blame the Customs officer for being suspicious. The memory board was about half a metre long, 20 cm high and several centimetres thick. In fact it looked more like a honeycomb frame that a beekeeper might install than a computer part. Only the metal threads embedded in the hard plastic gave away its real nature.

After taking the board away for a special x-ray, the officer relented. "Okay gentlemen, you can go through. I haven't seen one of these before, but I will let each of you bring one in as a work tool."

Indeed each of the four team members was carrying a single memory board, with just that solution in mind. And based on IBM's assurances and the documentation he had read, Mike was fairly sure the x-rays hadn't done any harm.

He was though still feeling tense the next morning, when the Kiwi team re-gathered at the head office of the major hotel chain they would be working with again. Sure enough, their hosts had set up a comfortable work room. Mike opened up the PC, installed all four memory boards, loaded the spreadsheet software, and inserted the 3.5" disc with the latest version of his financial model. Fantastic – everything worked! He shared the good news that negotiations could begin as scheduled.

The next few days passed swiftly. Each day was spent in intensive meetings as Mike's team worked up the hotel chain's management hierarchy. Their goal - to persuade Global Resorts of the economic feasibility and potential profitability of the luxury resort Mike's New Zealand client hoped to build in a remote location of the scenic South Island. None of Global's executives had ever used a spreadsheet themselves, still less a complex economic model. And they were somewhat skeptical of their own "International Development Manager" James, who had visited New Zealand and was enthusiastically backing the proposal. Perhaps he'd been gullible!

But Charlie's management skills, combined with Mike's ability to demonstrate on-the-spot the conservative validity of our assumptions and how the variables in the model interacted, won through each time. Meanwhile the third team member Derek was

closeted with Global's legal team, developing a complicated contract to cover all aspects of the capital investment and later resort management.

Brian, the director who represented the majority owners of our client's company couldn't add much value in either of those technical forums, so he was free to go sightseeing. In fact he was the only one that went out, since the building that housed Global's headquarters was also a luxury hotel. The only commuting was by elevator!

By Thursday evening, they were there. James gleefully announced that all the necessary management sign-offs had been achieved. Tomorrow they would meet the chairman of the board, who would make the final call. Resting up in his hotel room, Mike reflected on the many months of hard slog and forced innovation that had got the proposal to this point.…

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The project had begun simply enough. Stuart, one of the partners at Mike's "Big Eight" accounting firm, introduced him to a new client. Brian had been a small-scale property and business developer. But like many of New Zealand's entrepreneurs in the roaring 1980's, he had big ambitions. In the newly deregulated Kiwi economy. farm properties in the scenic Southern Lakes were going cheap after the removal of subsidies. Brian convinced family and friends to club some funds together, borrow a lot more, and buy a property that could, as he put it, "easily become New Zealand's first large-scale international resort". Their new company Southern Station just needed to find an experienced upmarket international hotel partner to plan and run the resort, and a local construction company that would build the hotel, condominium units, golf course and associated facilities. In the meantime farming operations would cover some of the interest on the loan, so borrowings would not climb too fast.

Brian's big ambitions had quickly come unstuck. Just to start building in a remote location would require high-capacity water transport and on-site staff housing. Cost estimates quickly escalated. The bank soon became nervous. Unless Brian could demonstrate the resort could repay its loans, the bank would call them in.

As Brian explained, he then had a lucky break. "I met James, International Development Manager for Global Resorts, while he was on holiday here. James loves New Zealand, and he sees huge potential for a large top-end resort. Global Resorts currently aren't active in Asia-Pacific, and they should be. So James is keen to promote the project back at his head office, and his people can provide whatever data you need. All your firm has to do is crunch the numbers, to show them and the bank how the finances work out."

Mike wasn't surprised Brian had come to his firm. Over the past two years, he had developed a thriving line of business using the brand-new technology of Lotus 1-2-3 spreadsheet software on "luggable" IBM personal computers. His mathematical background made it easy to convert the back-of-the-envelope estimates of business owners and promoters into financial models that could run a range of scenarios. Investors and bank managers usually couldn't follow the calculations themselves, but printouts produced under the global brand on the firm's stationery were persuasive. Somehow the magic of the computer made the values for key assumptions more credible (even though they were still clearly labelled "Estimates supplied by client").

Other accounting firms, more conservative and less skilled, couldn't match that service.

Stuart and Mike quickly agreed the scope of the engagement, fee rates and an initial budget. Brian left their office a happy man.

Over the next week, Mike reviewed Brian's rather glib notes about how the resort would work. More helpfully, he studied extensive data sent over by James to identify and estimate the key variables: room numbers, occupancy rates and visitor flows, pricing, staffing ratios, management fees and so on. Mike started drawing on the whiteboard, and soon concluded that the technology he was using couldn't cope. The large number of interacting variables meant that a working financial model of the resort required multiple linked spreadsheets, not the two-dimensional array that was all Lotus 1-2-3 could offer. And Mike wasn't sure that the 512k memory of the latest IBM PCs would cope with the heavy-lifting calculations to run such a model.

Were there other options? Mike checked out some IT publications and contacts, and discovered software company Ashton-Tate had just released a new spreadsheet product called "Framework". Its proclaimed point of difference was the ability to link multiple spreadsheets within a single file – something Lotus and other spreadsheets couldn't do. And even a huge file could apparently run on standard PCs. Great!

While waiting for the software to arrive, Mike designed the model at concept level. He would need 14 spreadsheets in all, that would pass the results of calculations from dozens of variables back and forth to each other. In effect, the financial model would capture the construction and operation of a small town, and track the financial activities of every inhabitant as they worked or played there. All the numbers, starting from early construction and continuing through to full-bore operation, would pull through into an overall profit-and-loss account and feed into a balance sheet for the venture. Capital financing would be allowed for and return on investment could be readily calculated.

The overall scope and complexity of the model went far beyond anything Mike's firm had done before. His colleagues were dismayed. In principle, Mike was confident. He knew such computer simulations were routinely done, more clumsily, on powerful mainframes in big computer centres. But in practice, could that be done on a PC?

The new software worked just fine – at first. Mike built the model one spreadsheet at a time, gradually introducing new variables and linkages between the spreadsheets. James was delighted with the printouts Mike faxed to his team in North America – they had never before had the ability to run complicated calculations and multiple scenarios so quickly and easily. His bosses would be tougher to convince though. Global Resorts normally managed resorts without investing any capital in them. This proposal traded a more generous management contract and a sellback option for that initial investment, but that meant it would ultimately require a Board decision.

Brian was happy too. He engaged Charlie, a first-class Chief Executive, to lead the project. And he authorised a much larger fee budget for Mike's firm that allowed for research to verify the reasonableness of key input values. Mike was gleeful. This would be more than just a pretty presentation of projections from glib client estimates. It would be a true world-class feasibility study!

But even at the start, making just a single change took a few seconds. Every additional line, even just a new text reference, generated a recalculation of the model. And as the model grew, the delays got longer, soon extending into minutes. Mike and his staff were pushing the technology to its limits, and work was slowing down…

The first fix was to add an additional chip to extend their IBM PC's working memory from 512kb to 640kb. That option had been available for a few months. It helped, but only a little. The model was far from finished, and they were soon outrunning memory capacity again. And agreed deadlines that had seemed comfortable enough, to take the final result overseas to James and his Board, were now under threat. The Kiwi team couldn't afford to damage James' credibility or lose his support.

While sitting out a recalculation, Mike leafed through the latest issue of PC Magazine. An enthusiastic review reported on independent trials of IBM's latest announcement – a 2Mb memory board that could be fitted into existing PCs to improve their processing capacity. Wow! 2Mb would at least quadruple what they were using! And the review said up to 5 of those memory boards could be installed into a single PC.

Would the Framework software cope? Its documentation suggested it would. In fact it was rated to operate memory capacity up to 32Mb, in theory at least. Problem solved! Mike quickly ordered and installed a (very expensive!) 2Mb memory board. He now had leading-edge technology to work with.

Sure enough, the memory board reduced calculation times back from minutes to seconds. But as Mike and his staff worked to complete the model, recalculations steadily slowed. Once again, they were pushing the technological limits…

They were now in trouble. Giving up would disappoint their client and lead to fee write-offs. Instead, Mike renegotiated deadlines and budgets and pressed on. But they kept needing more memory! A second memory board was installed, then a third, and finally a fourth. Each gave performance improvements, but with steadily diminishing returns. They now had 8.5 Mb of memory to use in theory, but much less in practice.

And the technology was getting cranky. Saving the model now took many minutes. Worse, the model would occasionally just fall over, crashing the software and losing all the work done since the last Save. Sometimes the crash also destroyed the previous Save of the file or even brought down the whole PC, forcing them to devise elaborate backup routines on painfully slow diskettes. The machine worked more and more hours each day, and Mike organised staff shifts to cover that. Leaving the office late in the evening with someone else still finishing up, he could never be sure what the next morning's starting point might be.

Charlie came in to report that the bank was getting more and more anxious as expenses (not least accounting fees!) mounted. Unless the Kiwi team came back from its upcoming trip with a firm investment commitment from Global Resorts, the bank might pull the plug. Fortunately the model was now completed to everyone's satisfaction. Global Resorts had sent two executives over to check out the site. All engineering studies were complete, transport infrastructure had been planned and a local construction company was ready to sign up and start work on a month's notice.

The team's flight to Los Angeles was booked for the following Saturday. All they had to do until then was run more scenarios on the model as James refined some of the data (he confided that his bosses were delighted with his ability to do that. Running the model right in front of them would be an important part of the "sell" when they came on-site).

Then disaster struck. On Wednesday afternoon Mike was running a new scenario using freshly received data. James and his bosses wanted to see that result as soon as possible, and certainly before the team left New Zealand. Once more, the PC crashed. But this time it wouldn't even finish restarting before crashing again. And again. And again. Mike went home depressed that night.

Things were no better the next morning. Mike got the PC up and working again, but it crashed again before much progress could be made. And then immediate crashing on every restart resumed. A hastily-summoned computer engineer tested the PC and all its parts fully, but couldn't find anything wrong.

Mike telephoned IBM for help. They took a while to understand the problem, then said they would check into similar cases and call back. And they did, with obvious excitement. "You've really put 4 memory boards into that PC? That's amazing. We have no record of anyone else doing that outside the laboratory. You're running the world's biggest PC out there in New Zealand!"

So IBM had nothing to suggest that Mike hadn't already tried. And he had no time to "send the machine and the memory boards to us for checking", as IBM had suggested. The Kiwi team and the whole project were stymied.

Mike pulled Stuart out of a client meeting. Stuart was a traditional accountant, who had never really understood how our PC technology worked. In fact he couldn't even use one. But he did quickly grasp the likely business consequences of the problem.

"We need to fix this, fast!" He mused for a while. "Okay, let me get this right. The financial model does calculations, and then uses the results in further calculations. Our staff do that sort of thing quickly on their calculators. So if we got enough of them lined up, they could crunch the numbers and pass the results back and forth, right? Let's do that!"

Mike dismissed the idea. "Stuart, that could work for a simple spreadsheet based on a few inputs. But here we have many spreadsheets, and dozens of variables passing back and forth. It's just not possible to replicate that with manual calculations."

Stuart wouldn't give up on his idea. And it was his client after all. So Mike agreed to give it a try.

That afternoon, they assembled eight staff with calculators. Each would act as one of the main profit centres affected by the new data, and perform calculations to replicate the workings of that part of the model. He or she would check each result carefully and then bring it to Mike or a colleague, ready for use as input elsewhere. Mike would guide the variables around the full model as work progressed.

Mike briefed the team carefully. There was a positive buzz in the room. The firm's staff were proud of their calculating speed and accuracy, honed over years of

practice with client work and (during slack periods!) “calculator races”. And they were keen to help the firm satisfy a major client. Work began with a rush of energy.

Desk calculators clicked and individuals rushed around the room with their printed tapes. Initial progress was impressive. Mike felt like he was sitting inside a giant calculating machine, watching human electrons and signals at work! But as the variable interchanges necessary to take the next steps became more complicated, calculation backlogs developed. Staff began to feel doubtful, and their body language showed it. Mike silently revealed to Stuart how few lines in the full printout had been ticked off as complete. Stuart nodded slowly. Mike called a halt. “Okay, thanks team, just finish what you’re working on and take a break.”

Their “human financial model” had failed. After the staff had gone, Stuart looked wryly at Mike. “Okay, don’t say it. I was wrong. Just do what you can and keep me updated. I’ll apologise to the staff.”

Mike drifted back to the real PC. The computer engineer was still there, stubbornly studying documentation. “I just don’t get it. This machine should work! Everything checks out when it’s tested separately. But once it’s all back in there, things fall over…”

Mike sighed. “Thanks for trying, Duncan. Especially in this heat.” Despite air conditioning, the workroom had become steadily less comfortable as summer advanced.

Duncan snapped his fingers. “That’s it! Heat! With all that stuff in there and the electronics going hard, the inside of the PC gets too hot. And that causes a crash!”

Mike quickly marshalled several fans, and cooled the PC (and themselves!) down below normal room temperature. And sure enough, everything started working fine! Mike shared the news of success, left others to finish the last calculations and started packing everything up for departure early on Saturday morning.

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And now, they had fought their way up the chain and were just one step away from success. Global Resorts management was keenly recommending that a relatively small capital investment was amply justified by downstream profits and a strategic move into new and expanding geographic markets. No Board meeting would be required, just confirmation tomorrow from their CEO (also their Board Chairman). Mike turned in early and enjoyed a great sleep.

The rest of the team had done the same thing, and chatted happily over a tasty breakfast. Charlie reminded them that Global knew nothing about the key weakness in their position – severe financial pressures and no alternative investors at hand if this negotiation fell over. “Guys, remember I’ve hinted to James now and then about other resort operators being keen to talk with us, and how I’ve been holding them off. He will have passed that on. And he wants this deal. So keep playing that line.”

An hour later, they were sitting outside the Boardroom door, enjoying a marvelous view of the city and harbour. No-one expected more analysis of the proposal, just a

personal discussion and perhaps some contractual dickering. But just in case, they had all their information to hand and had agreed how to present it.

The Kiwi team was ushered into the Boardroom – wood paneling, paintings of past directors, ornate Board table, leather armchairs. James joined them. Then in came Jack.

James and others had already told the Kiwis what to expect. “Genial Jack” was a Global Resorts man through and through. A competent and careful executive, and good with finance, he had risen steadily through the ranks before being appointed as CEO nine years ago. Reliable rumors said that he would retire next year.

After introductions, Jack seemed happy just to chat about “Noo Zeeland” for a while. “Fantastic scenery you got there. Yes, I’ve read all the papers you guys developed, working with us. Great job, really creative! So tell me why we should invest.”

Starting with Brian, the Kiwis ran through their pitch. Jack listened, but without showing much attention or interest. Derek closed the batting with a short explanation of the contract that had been agreed with Global’s legal team.

After a few moments, Jack spoke up. “Let me explain my position. You’re asking us to invest our money and reputation in a risky venture. I know you’ve convinced all my guys that it can work, and they’re excited about the idea. But the only proof you’ve really got are the numbers you’ve crunched, backed by the reputation of the number crunchers.” Jack looked straight at Mike. “Mike, tell me again why we should go into this investment with partners” – he pointed briefly at each other team member in turn – who have no experience in businesses this big.”

Mike repeated the key points he had already made. And then added one. ”I’m sure you see a lot of pitches. But this proposal is verified by a new type of top-quality financial modelling, that just couldn’t be done until now. We literally built the world’s biggest PC just to do that. And our firm’s international brand stands behind it. That’s why you can feel confident about making this investment.”

Jack chuckled. “Okay, I’m impressed with that part.” Then he looked firmly around the table. “But I don’t think I want to make that investment. You’re proposing that we invest capital in a resort still to be built, from scratch, in a remote location, in a remote country, with inexperienced partners. That’s too risky for our company’s reputation, and for mine. I’m not willing to make that call.” He paused for a moment. “So I’m sorry fellows, but I guess you’ll just have to find another investor.”

The team sat in stunned silence. James reacted first. “But Jack, that capital investment is small change compared with the size of the opportunity we have here. And if we don’t take up that opportunity, someone else will. My team has worked for months on this, and these guys are going home to New Zealand tomorrow. At least think about it…”

Jack was brusque. “I have thought about it. And I’ve read all the papers and checked all the numbers. That’s not the issue. But okay, I’m willing to see you all again this afternoon before we close it out.” He paused. “I don’t know what could change my mind. But you’ll have to say something new, not just present the same information all over again.” He started walking out. “See you at three p.m. sharp”.

The Kiwi team, plus James, regrouped in their workroom. Was Jack's attitude just a negotiating tactic to get a better deal, someone wondered? James was sure it wasn't. "You heard the key word there. *Reputation!* Jack doesn't want to end his career on a sour note by making a bad decision. He's got nothing to lose by saying no, and he's afraid that he might look a fool later on if he says yes. Sorry to say it guys, but I don't think you can shift him." He left to attend another meeting. "See you at three."

The Kiwi team had just three hours to find a way forward. Over lunch, Charlie formulated a plan. Their only chance was to convince Jack that turning down the project was a bigger risk to his reputation than approving it. That meant threatening to walk away and offer the project to a competitor who would make it successful. And incidentally make Jack look silly for turning it down.

Charlie was clear on how to do that. "In Jack's eyes, Mike is the only one with credibility. So Mike has to take the lead, and explain that his firm has plenty of alternative investors to take the project to. And no one else says anything – not me, not Derek, and not Brian. Then we get up and leave. They will have to call us back, now or later, before we say or do anything more. It's a slim chance, but it's our only chance. Are we all agreed on that?"

"Fine with me", Mike said. Derek gave a thumbs-up. Brian looked unhappy, but slowly nodded. Together, the team developed what Mike would say. He rehearsed that, several times.

They still had an hour, so everyone retired to their individual hotel rooms further up the building to freshen up. Mike welcomed some private time! He turned on the radio to listen to the local classical music station for a few minutes. It was playing Wagner's dramatic "Ride of the Valkyries" – a perfect send-off to battle.…

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Back in the boardroom, Jack was genial but distant. "Fellows, I can't spend long on this sorry. But I'm happy to hear anything you've got to say to promote your project."

Mike responded as they had planned. "Thanks Jack. We won't need very long. You made your position clear, and we understand it. We think we've got a great project here, and we'd like to partner with you. But if you're not prepared to invest, then that's your choice and we respect it. There are others who want to invest in the resort and then operate it. We'll do what you suggested and take it to them instead."

Mike waited a few seconds to see if Jack would reply. Jack looked surprised, but didn't say anything. James looked back and forth at Jack and Mike, and stayed silent.

Mike started rising to his feet. "Okay guys, I guess that's it. Thanks for everything Jack." Charlie and Derek followed his lead. But just as Mike reached his feet, Brian cracked. "Jack, listen PLEASE. You can't just let this go. I represent the shareholders, not these guys. I'm sure we can reach a deal. Let's talk about it."

In that moment, Mike knew any chance of winning was gone. Jack agreed to talk privately with Brian, without staff or consultants. The rest of the Kiwi team, and James, waited outside disconsolately for a short time and then broke up for the day.

Brian's upbeat comments that evening that Jack had "promised to look again" at the project persuaded nobody – not even Brian. And when Brian described how he had reassured Jack that they wouldn't talk to anyone else in the interim, Charlie exploded. "For God's sake Brian, just shut up! Save your breath for talking to the bank."

A subdued group flew back to New Zealand. Predictably, the only formal communication from Global Resorts that arrived before Christmas was an assurance that they were "still interested" in the project and would consider it again "in the near future". The Southern Hemisphere summer drifted away, and so did the project.

Mike could do nothing except make sure that his firm's fees were paid. Charlie soon had a fight with Brian, and walked out to take another job. The bank quietly took over the company's finances and closed down all non-farming activity. Six months later came the 1987 share market crash, and after that no-one thought much about building resorts or anything else in New Zealand for quite a while.

PC technology developed rapidly. Memory capacity soon expanded to dwarf what Mike's team had used, and multi-sheet modelling became the norm on every spreadsheet program. Other firms developed financial modelling expertise. And the massive feasibility study, developed in remote New Zealand on what was for a few short months the world's biggest PC, passed into history…….