Mr Vice-Chancellor,

We are constantly taken by surprise by innovations in computing and electronics, and it is difficult to comprehend the extent to which *micro*electronics underpins Google and the Internet, products such as mobile phones, DVD players and iPods, or the control systems in motor cars and aeroplanes. Over 40 years, microelectronics has developed into a $250 billion global industry and Pasquale Pistorio, who stands before us today, has played a major role in its growth.

Pasquale was born in Enna, a village in the Sicilian mountains, in 1936. His independence started early – there was no local education beyond 13 – so he went to school 50 miles away in Catania on the eastern coast of Sicily. He then moved 1000 miles north, becoming a student at the Politecnico di Torino, graduated in electronics and started his career selling electronic components. It wasn't easy – he had no car and visited his customers on a bicycle. His employer couldn't afford to pay for faxes and long-distance phone calls - or even cover the import duty on customer orders! But Pasquale quickly learned how to satisfy his customers and – with his commission at stake – even managed to persuade them to advance their payments! He was soon recruited by his supplier – Motorola – for its first office in Italy, then moved to the United States and – following a rapid series of promotions – by 1978 had become Vice President of Motorola and General Manager of its International Semiconductor Division.

In 1980 Pasquale was offered the opportunity to return to Italy as Chief Executive of the Italian microelectronics company SGS. This was the kind of 'opportunity' that most of us would call a *challenge* and I'm going to give you Pasquale's account of a conversation with John Welty, at the time Chief Executive of Motorola. "So you're leaving Motorola to join SGS?" *"Yes, John."* "Is SGS a good company? Is it in good shape?" *"No John, they are losing their shirt. They are in real difficulties."* "I see. Well, is Italy a very nice environment to work in?" *"No John, terrorists are killing one executive a week and the unions are really dominating the scene."* "Are they paying you more?" *"No John, they are paying me less."* "Pasquale, are you crazy?" *"Yes John, I am crazy."*

But Pasquale is motivated by – in his own words – *"the thrill of accepting an almost impossible challenge."* He wanted to return to Italy, and to ensure that Italy – and Europe – had a significant presence in the microelectronics industry. He turned SGS around rapidly, and in 1987 succeeded in what many regarded as an *absolutely* impossible challenge – integrating Italian state-owned SGS and French state-owned Thomson Semiconducteurs, forming SGS-Thomson Microelectronics. This was followed by several acquisitions including Inmos, based here in Bristol. Every year he set the company the "almost impossible" challenge of doing better than its global competitors – and year after year it exceeded industry performance and growth rates, transforming itself into a profitable company now 75% listed on the world stock exchanges as STMicroelectronics. Today it is the fifth largest microelectronics company in the world, employing 50,000 people working across four continents and with an annual turnover of nearly $10 billion, sustaining its technology and innovation with an annual research and development investment of $1.6 billion.

Pasquale has made a major commitment to securing the future of microelectronics in Europe. When he joined SGS, he faced the problem of a division in Catania which was losing more than the value of its entire production. The *short-term* option was to close it – but Pasquale had *long-term* plans – along with a clear sense of responsibility towards the workers. He embarked on a programme to transform the low-technology product assembly operation in Catania into a centre covering leading-edge research, product development and manufacturing. The company now employs 5,000 people there and has been joined by other global high technology companies. And here in Bristol, we are very fortunate that Pasquale's decision to acquire Inmos had the effect of securing the future of microelectronics design, with more global companies investing in design centres, in turn giving rise to a series of microelectronics start-ups. Today the South-West region of the UK has the largest cluster of microelectronics design companies in Europe.

In the late 1980s – when Pasquale was laying the foundations of what became STMicroelectronics, the green movements were gaining ground, protesting that corporations were damaging the environment. Pasquale was inevitably drawn into this debate, and in fact his student son challenged him about what he *really* valued. I imagine there must have been some robust discussions, because Pasquale can be

forceful – some have said 'fiery' – in discussions and negotiations – and students are not known for holding back in arguments with their parents! But he is also a listener, questioner, thinker and learner, and his ideas developed rapidly.

By 1994 he had launched an ambitious programme to achieve environmental and sustainable development throughout the whole of STMicroelectronics, initially focusing on manufacturing. By 2000 the results were easily visible. In an article strongly supporting the Kyoto protocol he wrote: "Thanks to these measures, the planet has been spared the burden of another 100 megawatt power plant. The water we have saved could quench the thirst of 50 million people for a year. We are using 28 per cent less electricity and 45 per cent less water than in 1994 for the same output. This translates into a saving of $50 million last year alone". The company is now well on the way to becoming carbon-neutral – and if anyone can persuade the sales-team to give up their cars and use bicycles it will be him!

I'd like to tell you a little about how Pasquale works. He engages everyone in his thinking – and in meetings young staff have often been surprised when he has introduced himself personally and encouraged them to contribute. And he is definitely an Engineer at heart – the English word here is not as appropriate as the Italian 'Ingegnere' with it's connotation of *ingenuity* and correspondingly high social status. Pasquale must have learned how to design amplifiers as a student, and he has described a business as a *resource amplifier,* adding, "if it isn't, it's a parasite." So he designs business processes which measure the outputs, compare them with the objectives and make changes when they don't match.

In 2001 Pasquale was appointed to the United Nations Information and Communications Task Force at a time when there was increasing debate about the 'Digital Divide' – the potential for access to information to have a direct effect on wealth. He made the radical proposal that *companies* should support education and training in the regions in which they operate, contributing a percentage of their revenues and their employees' time. Characteristically, he has already implemented this proposal within STMicroelectronics by establishing the STMicroelectronics Foundation which in 2006 engaged nearly 600 trainers working with 25,000 people in locations such as the Congo, Ethiopia, Morocco and Thailand.

For many years, Pasquale has championed socially and environmentally responsible business practices. He believes that businesses should be involved in closing the *technological gap* for both moral and commercial reasons, arguing simply that it is better to have three billion potential customers rather than three billion desperate people living in poverty. He has also argued that talented young people will want to work for companies that generate wealth without destroying the environment. And finally, in his own words: "In the end, environmentally friendly companies are simply more profitable than ones which are not."

Pasquale has received many honours, including Italy's Cavaliere del Lavoro and France's Officier de la Légion d'Honneur – alongside more popular accolades such as the "Green Hero Lifetime Achievement Award." Since 'retiring' – for him an *absolutely* impossible challenge – as Chief Executive of STMicroelectronics, he has become its Honorary Chairman. He sits on several boards and was recently appointed Chairman of the Board of Italy's largest telecommunications group, Telecom Italia. He advises the Italian, French and Singapore governments.

Pasquale Pistorio has been a leading figure in the development of the microelectronics industry. His vision, energy and integrity have enabled him to create one of the world's leading high-technology companies. In doing so, he has been the catalyst for half of Europe's microelectronics industry, attracting global companies and enabling entrepreneurial start-ups. He has been a pioneer and vociferous advocate of socially and environmentally conscious industry. He epitomises the engineer as a social leader as well as a technology and business leader.

Mr Vice-Chancellor, I present to you Pasquale Pistorio as eminently worthy of the degree of Doctor of Engineering *honoris causa*.