EIP

The UK National Semiconductor Strategy: a first glance

The UK Government has released its National Semiconductor Strategy. The Strategy sets out the UK Government's vision for the semiconductor industry in the UK, and details funding and other initiatives that it plans to put in place to support the sector. It also details how the UK can be more resilient to supply chains shocks and how the UK will deal with threats to national security that arise from semiconductor technology.

So, what does the Strategy include?

The Vision

The Strategy's overarching vision focuses on three of the UK's main strengths. These are R&D, design and IP and compound semiconductors. There are no surprises here. The UK already has an excellent university-based research base with a strong track-record in spinning out successful semiconductor companies. Design and IP refers to design companies like Arm and Imagination, two huge success stories, and the many smaller companies that follow in their steps. The compound semiconductor cluster in South Wales is well known to be world-leading in it's R&D in the compound space. On the other hand the Strategy does not address manufacturing, acknowledging that the UK is not going to compete with Taiwan, China the US or even Europe when it comes to silicon-based semiconductor production. Again, no surprises here.

The Strategy is split into three core areas, which are: growing the UK sector; safeguarding the UK against supply chain disruption and protecting the UK against security. There are parallels here with other industrial policies on semiconductors. For example, the EU CHIPs Act includes provisions relating to European R&D and supply chain monitoring in Europe.

Growing the UK sector

The Government has promised up to £200M for the sector over the next three years, with the possibility of £1B over the next ten. As these numbers are relatively small compared to the tens of billions on offer elsewhere, they have of course drawn a lot of attention, and criticism. In my view, of greater importance than the amount on money will be how it is spent. Unfortunately, the Strategy does not offer a lot of detail on this, so it's difficult to comment at this stage.

The growth strand focuses on three main areas, which are: research and development, infrastructure, and skills and talent.

The R&D aspect is focussed on university spinouts and start-ups. The Strategy acknowledges that while funding is already available through various funding bodies, semiconductor companies must compete with other technologies. A more focussed approach is needed.

The Strategy identifies innovative manufacturing technologies and several emerging semiconductor technologies as areas where funding will be available. The focus is on university-based R&D and spinouts. The Strategy also proposes funding for doctoral researchers in key semiconductor technologies.

The most interesting part of the growth strand for many companies will be the launch of the UK Semiconductor Infrastructure Initiative. This will look at the infrastructure required to enable more commercial R&D in the UK. The Initiative will include the possibility of an "open-foundry" for compound semiconductors, as well as access to chip design software and prototyping facilities. This is to address the fact that these facilities are typically very expensive to access and are often based outside of the UK. This creates problems for SMEs with limited resources. However, the Initiative is currently in a consultation phase and we won't know more about the details until the Autumn.

The other aspect of this strand which is promising is a semiconductor incubator for new start-ups which will attempt to lower barriers to entry by also providing access to design tools and prototyping, as well as providing business coaching. No further details are available about how and when this will be established.

Beyond this, much of the "growing the UK sector" strand is about skills and talent. Many initiatives are mentioned from incentives for teachers in the sciences to supporting STEM outreach programs for semiconductors. Many of these initiatives seem to be pre-existing programmes. While this is a hugely important and valuable part of the Strategy, it will of course be some time before semiconductor companies feel the benefits.

The Strategy also mentions various aspects that were already announced as part of the Spring budget. For example, a higher rate of tax relief will be available for R&D intensive SMEs. A programme designed to encourage pension companies to invest in science and technology and the Government's new investment zones were also highlighted as areas that would benefit the semiconductor sector.

Finally, the Strategy also suggests the Government will look at manufacturing requirements that are 'critical' to the UK technology sector or national security.

Safeguarding UK supply chains

Like other countries, the UK Government has acknowledged the negative impact that supply chain shocks in the semiconductor market can have on industry and national security. The Strategy includes several provisions to address this.

Firstly, the Government will publish guidance to help companies prepare for future shocks to supply chains. The Strategy also proposes various information gathering exercises to look at the impact of future shortages on critical sectors, and to ensure resilient supply to the defence sector.

As noted above, the Government will also review the manufacturing requirements of critical sectors in the UK, to establish what baseline level of manufacturing might be required to ensure the UK remains resilient.

Finally, the Strategy also proposes several initiatives that will involve international collaboration with trusted partners to improve supply chain resilience.

Protecting the UK against security risks

The Strategy focuses on two main areas that are relevant to national security. Firstly, it looks at the risk of UK technology getting into the wrong hands and being used against

UK interests. Secondly, it looks at the threat posed by cyber security vulnerabilities built into semiconductor hardware.

The National Security and Investment Act has already been used by the Government to block the sale of UK-based semiconductor companies to Chinese-backed entities. This was the case with the sale of the Newport Wafer Fab to Nexperia. The Strategy acknowledges that the way the Government has used this legislation has come in for criticism and proposes a more transparent approach. For example, they propose providing guidance on which parts of the sector are regarded by the Government to be more sensitive. The Strategy also proposes the potential expansion of export controls to certain semiconductor technologies.

In terms of cyber security, the Strategy acknowledges that the UK has a leading part to play in ensuring hardware-based security is up to the job, given the strength we have in hardware design and IP. The Strategy proposes various initiatives to continue the UK's role in this field, including convening experts from across the sector to discuss security improvements and facilitating discussions with our international partners on the issue of security.

The Strategy also focus on the RISC-V instruction set, acknowledging the UK's strong position in this technology. The Strategy proposes Government support for academic research and collaboration with industry to further the UK's capabilities in this area.

What does this mean for UK businesses?

The vision and focus on semiconductors should be broadly welcomed by the UK semiconductor sector. However, there are definite winners and losers here. Universities, spinouts and start-ups appear to stand more to gain than some of our established semiconductors companies.

The compound semiconductor cluster in South Wales and the companies making up the design and IP part of the supply chain will be pleased to see that the UK's strengths in these areas recognised.

The focus of the strategy is on university spinouts and start-ups. Anyone operating at this this end of the spectrum will be pleased to see promises of Government funding for certain types of manufacturing capability and emerging technologies. The provision of extra support for academic training and tax relief for R&D intensive start-ups will also be welcomed.

The strategy also places a lot of emphasis on longer term skills and talent provisions. While much of this forms part of existing initiatives, ensuring a pipeline of talent for

semiconductor technologies will benefit the entire ecosystem in the UK.

p5 There is however a significant group of companies who may feel there is not much in here for them. These are the established larger companies, some of whom have manufacturing capacity in the UK. They might have been hoping for more support in terms of R&D tax relief, public sector procurement, export support and other financing and investment initiatives. These provisions seem to be absent from the Strategy. While it might be argued that these companies don't require Government support, we don't operate in a bubble. This part of the UK sector will certainly be considering carefully how initiatives in the US and EU compare to what is available here.

Additionally, the fact that several aspects of the Strategy have been deferred until the Autumn will be seen as further delays by many. For example, we will have to wait for the consultation on infrastructure to complete in the Autumn before we know more about how design platforms and pilot lines might be implemented in the UK.

Finally, there appears to be little in here from an Intellectual Property (IP) perspective. While the vision talks about supporting the design and IP segment of the market, there is little in the Strategy about how this might be done. We might have hoped to see better R&D tax relief, or a modified patent box, but there does not appear to be anything in the Strategy about this.