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Request: All documents that Dr Alex Wonhas prepared for the "internal documenting unit" in order to comply with any Senate order for the production of documents made in 2016. Any other documents prepared by CSIRO staff that were delivered to CSIRO's internal documenting unit in relation to any Senate Order for the production of documents made in 2016.

Document(s): Category J

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Anevski, Pam (C&G, Parkville)

From: Marshall, Larry (Executive, Campbell)
Sent: Thursday, 4 February 2016 11:46 AM
To: All Staff and Affiliates-DG
Subject: News on growth areas and changes

Dear colleagues

We have seen a major change already this year with oil prices way down, other commodities were already low, China slowing growth, polar ice packs continuing to melt, major financial markets down, and our dollar losing value. How do we respond? More importantly, how can we better predict these changes so we aren't responding reactively but rather investing ahead of time in the right areas of science to help mitigate these changes? I've run companies through three recessions and 9/11 and recognise change can be frightening, but we must embrace it and turn it to our advantage if we want to flourish.

Few decisions are irreversible, but in Australia we worry a lot about failure and spend too much time analysing rather than doing. Startups work faster because they dare to try new things and measure in real time whether they are working, and they are not afraid to change or pivot to deliver the best outcome. We must not be paralysed by our past.

Indeed, just like a startup, our nation needs to re-invent itself (pivot) in order to navigate a new and uncertain future. Our nation needs us to create the science to enable the innovation for this profound reinvention. Commodities are the bedrock of our nation and we will always support that industry especially now in times of declining prices when innovation can fundamentally change the game. But just selling commodities is not the path to an innovation nation – we have to be smarter than that: can we develop science that turns a commodity into a unique product that sells for a premium? We need more from ore.

Personally, I have high hopes we can transmute commodity mineral sands into unique Titanium ink for 3D printing to create a new multi-billion dollar industry, or coal into a cleaner form of diesel fuel to reinvigorate a 43 billion dollar industry, or to improve yield and prevent waste, making mining more profitable and sustainable, or synthetic biology to engineer precisely the attributes we need for health or sustainability, or to breed new strains of food and agricultural products that are healthier, more sustainable and highly differentiated so that Australia can become a unique source of quality value-added products rather than just a food bowl.

Digital technology will disrupt every Australian industry and each part of our business must reinvent itself to help Australia respond to this global challenge. This is why Data61 was the lynchpin of our new strategy, and many of our new investments are channeled through our existing business units to drive collaboration with our new digital business Data61.

The above are some of the new investment areas, others include:

Big Data, a clear priority for us and for the Government as increasing Australia's data literacy was specifically funded through NISA (National Innovation and Science Agenda). What science can we create that will help our nation adapt to and even benefit from digital disruption? Clearly Cybersecurity, open data, and anonymisation of data sets are the gel that will enable greater sharing of data to deliver better outcomes faster.

A national platform for the application of environmental big data sets and sensor networks building in the successful collaboration demonstrated by sense T, the first whole of economy sensor network

Health, a major growth area if we can develop the right science to keep our people healthier and develop better technologies to mitigate disease – just like energy efficiency, keeping someone healthy has exponential cost savings, as we have already shown working with hospital ERs, data saves lives, in the same way that designer foods make lives healthier.

ON our deep-tech Accelerator program is opening to partners, increasing the start-up and product management capability across CSIRO and developing a deep customer-focused practice, supported by NISA funding. Already the first group of ON participants are sharing their learnings with their business units and in particular the

realisation that the scientific method can be applied to understanding customers, and that invention only becomes innovation in the hands of those customers.

ON is the wellspring that will drive change throughout our business, it will reward deeper collaboration with our 41 university partners, and it will feed our Innovation fund with the science it needs to support a new generation of deep tech companies.

We have a vibrant SME community, they have good market visions but limited capital, CSIRO has the ability to transform these companies as we did with Textor, MDI, and Anatomic, our technology and engineering expertise can take science off the lab bench and deliver a beta to an SME that can transform their business. We will deliver more open innovation centres like LAB 22, next will be our Food innovation Centre.

Improving the productivity and sustainability of the mining industry through ore sorting technology and partnerships.

SMIS particularly inspiring women in science and coding and innovation in kids, per the NISA objective - when we inspire a child, the payback is exponential and delivers for decades.

Understanding and finding new techniques and technologies for precision agriculture in a resource constrained world.

The SKA, the biggest science project in the world – move over Google, this is the BIGGEST data.

I know this is a lot, and with finite resources, we must pick and choose where to prioritise. This means as we focus on new areas we must stop other areas. Our people are innovative and many can reinvent themselves to learn these new areas. We will need new people with new skills to help us navigate this new future.

CSIRO pioneered climate research, the same way we saved the cotton and wool industries for our nation. But we cannot rest on our laurels as that is the path to mediocrity. Our climate models are among the best in the world and our measurements honed those models to prove global climate change. That question has been answered, and the new question is what do we do about it, and how can we find solutions for the climate we will be living with?

Our investment in precision agriculture combines unique sensors with predictive analytics to help our farming community respond to climate change, and grow their prosperity. Following our seminal work published in Nature around Australia's National Outlook, we believe there is a path where climate and industry can be partners, now we must walk that path to prove our science. The development plan for Northern Australia opens many questions around biodiversity and sustainability of agriculture, soils and water that we must answer to ensure the development is done responsibly and sustainably.

The Great Barrier Reef is at risk, and clearly we need to enhance our nation's capability to restore marine ecosystems. We will grow our capability in autonomous marine platforms to make a step change in our management of the oceans, climate adaptation, climate interventions (geo-engineering), emergency response to extreme events, understanding of cumulative impacts of Blue Economy developments, our world leading water management capability, genomics and remote sensing methods for fisheries.

Some of our businesses have saturated the domestic market, but as a result of our excellent science they have been recognised globally and we are working on opportunities for land and water reform and development in several large countries that need our help. As rapidly growing countries begin to dominate the carbon footprint we must find ways to help them grow sustainably, drawing on the lessons learned by our own experience. CSIRO developed many of the clean coal technologies that protected our environment from harmful emissions, but we must do more. We have shown by combining our climate models with smart algorithms that we can dramatically reduce energy consumption of buildings, but can we invent new materials and better building designs that can apply to smarter cities of the future to improve even more? Our energy storage technologies can be combined with our solar and grid management technologies to enable greater penetration of renewables without increasing the cost of electricity, reversing the unfortunate trend which limits these technologies today. As our National Outlook work has shown, approaches like this will also help us in the long run increase the productivity of our electricity grids, the single most important lever to improve the affordability of energy by 30%.

Food and Nutrition serves three markets, which is unnecessarily challenging. In discussion with Martin Cole and his team and with our Board, we are considering bringing the food activities into Agriculture as this would align our food and agriculture work perfectly with the Food and Agribusiness Industry Growth Centre. In this case, the nutrition part of Food and Nutrition would move to the new Health business (this would be analogous to eHealth

moving from DPAS into health earlier this year). In keeping with the structural shifts made previously, this completes alignment of our science to specific market verticals.

What does this all mean? Normally a business has to cut to grow, the cuts enable investment in the new direction. Fortunately, NISA gave us the runway we needed to realign and restore our business for growth. This was a major win for team CSIRO, but now we need to justify our country's faith in us by delivering.

However, as our business unit leaders work through the process of realigning their teams for the new strategy it is inevitable that there will be job losses. Overall, this strategic alignment will not lead to an overall reduction in our workforce. Our headcount is projected to be unchanged at the end of a two year period, but it is anticipated there could be up to 175 less CSIRO people per year during this two year transition. There will be reductions in headcount in Data61, Oceans & Atmosphere, Land & Water and Manufacturing, but other business units will also be impacted in that changes in capabilities are required and there will also be some transfer of personnel. For some business units there will be limited or no staff impacts.

I am mindful that CSIRO has had significant changes over recent years. This is not a repeat of the major change we had several years ago, and to put this planned transition into perspective, on average over a number of years we have had 220 people per year leaving CSIRO through redundancy. While I know that a smaller number of job losses in no way diminishes the pain of losing team members and friends, it is something that we must do to renew our business. The exact numbers are being worked through by business leaders, but I expect the numbers won't be too different from our historical average.

We will continue the process of integrating Data61 into CSIRO, and I am pleased to note that the impact on the numbers of staff will be significantly lower than was anticipated.

Turnover is essential for a healthy business, there must always be an advancement path for growth, and opportunity for new people to join CSIRO. This does not in any way diminish the importance of work done in the past and those who did it, we will always honour those who built the foundation for our future, but we must evolve or grow stagnant.

I realise that hearing about job losses is never good news and I can assure you this will be managed in the most respectful and open manner possible. I and the Executive Team have been working with EMC and you should expect to hear from your Business Unit Director or General Manager shortly to discuss the details and to air any questions or concerns you have.

As you absorb this message I hope you appreciate the intent of treating everyone in CSIRO as a trusted insider, and sharing the news with staff immediately as we work through the detail in real time. Please direct any external enquiries to your Business Unit manager or to your closest comms colleague.

It's personally a tough message for me to share as I joined CSIRO with a growth objective and one which I don't resilie from. However I also know that we need to evolve our capability to meet global market changes in order to deliver on our mission for Australia.

Thanks for your support in this.

Regards

Larry

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