

# **SMA Inc Case study – based loosely on real events**



## Contents

<b>SMA Inc. – A Case study</b> .....	2
<b>The business environment</b> .....	2
<b>Forum for the Future of Agriculture</b> .....	4
<b>Trends</b> .....	6
<b>Performance of SMA Inc</b> .....	7
<b>The CEO of SMA Inc says:</b> .....	9
<b>The key competitors are:</b> .....	11
<b>A recent meeting of the executive management team</b> .....	11
<b>Appendix A – Slides from the VP Finance’s presentation</b> .....	14
<b>Appendix B – SMA Inc - Divisional performance</b> .....	20
<b>Appendix C – SMA Inc Financial Statements</b> .....	21
<b>Appendix D – Data Analytics Limited</b> .....	23
<b>Potential acquisition of Data Analytics Limited</b> .....	25
<b>Acquisition of Data Analytics Limited</b> .....	25
<b>Agricultural and Turf – customer profitability</b> .....	25
<b>Contract with the Nigerian Government</b> .....	27
<b>New product development and research and development expenditure</b> .....	27
<b>Performance of the company</b> .....	27
<b>PRESENT VALUE TABLE</b> .....	28

## SMA Inc. – A Case study



SMA Inc. is a multi-national company based in the USA that designs, manufactures and sells capital equipment in the agriculture, construction and forestry market. The company is organised into three main divisions, each of which operates in a different segment of the market. The three divisions are: Agriculture and Turf, Construction and Forestry and Financial Services. The SMA **Agriculture and Turf** division designs, develops, manufactures and distributes a line of agricultural and turf equipment and related service parts. Many of its customers are individual farmers and major agricultural companies who farm on a large scale, but it also has deals with major governments to supply farming equipment under government schemes to support the farming industry in less developed countries. The SMA **Construction and Forestry** division designs, develops and manufactures construction, earthmoving, material handling and forestry equipment which includes a broad range of equipment used in preparation of land for construction such as landscape loaders, bull dozers, articulated dump trucks, and backhoe loaders, and forestry equipment such as log harvesters and log loaders including a full range of attachments. The **Financial Services** division primarily finances sales and leases by dealers of new and used agriculture and turf equipment and construction and forestry equipment. The dealers act as retailers of the SMA equipment but the Financial Services division will also provide services to customers that buy direct from the manufacturing divisions. However, the vast majority of sales are made via the dealer network.

### The business environment

A growing world population, food shortages and volatile weather: these dynamic factors are having an increasingly significant effect on agricultural production worldwide. More and more people need to be fed, but the available arable land per capita is decreasing across the globe.

This is compounded by problems such as soil erosion, water shortages and extreme weather events, and poses major challenges for farmers in many parts of the world. Governments remain alert to the threat of food price volatility as unpredictable weather patterns have led to an increase in droughts, floods and hurricanes

It is anticipated that the world population in 2050 will exceed 9 billion, up from almost 7 billion today, with most of the population growth in Asia and Africa. The mix will include a large middle class developing in Latin America, China, India, and

much of the developing economies. Despite persistent global economic concerns, longer-term trends based on population growth and rising living standards remain quite powerful. It is widely believed that agricultural output will need to double by the mid-century to satisfy demand and do so with essentially the same amount of land, less water, and a shrinking rural workforce. This will put natural resources under strain, especially water and land.

There are growing environmental concerns and pressure for governments to implement sustainability policies and reduce greenhouse emissions to counter the threat of climate change. Agriculture has been seen both as a cause and a victim of global warming over the past few years. This creates uncertainty in the industry and makes attracting investment to improve agricultural methods and efficiency more difficult.

Agriculture is in a difficult position as far as climate change goes. Cows release huge amounts of warming methane (a potent greenhouse gas) every year. The Intergovernmental Panel on Climate Change estimates agricultural emissions account for 13.5 percent of all manmade greenhouse gas emissions. At the same time, poor countries want more money and better technology to help farmers adapt to the impact of climate change such as frequent droughts, flooding and increased salinity.

"It is really a bad split for agriculture," said John Beddington, who was until recently the UK's chief scientific adviser, and one of the authors of a paper calling for a more integrated approach, combining mitigation and adaptation efforts.

The paper, published in the Journal 'Science' with contributions from several scientists, called for a better understanding of agricultural practices with the aim of delivering multiple benefits – reducing emissions, helping agriculture to adapt, and using limited resources (like water) efficiently.

Climate change impact is likely to be greatest in low and middle-income tropical regions, where pressure will mount to produce more food because of population and income growth. The global focus must be on helping agriculture in those regions to adapt, and not just produce more or reduce emissions. The agenda needs to encompass post-harvest storage, distribution and transformation, i.e. turning the crops into food products. Although there is widespread agreement that something needs to be done, policy actions by governments have been slow to materialise. There is much talking and little action. Ideas such as the 'Climate-Smart' concept as developed by the UN's Food and Agriculture Organization (FAO) are widely supported and one or two pilot projects have been implemented, but yet there is little action other than talking. Climate-Smart is about attempting to make agriculture, forestry and fisheries part of the solution to the negative impacts of climate change.

Recent advances in agriculture technology are aiding food production. These are two types – biological, and digital. Biological advances are leading to more production and nutritious crops. Precision agriculture involves the integration of satellite observations, on-the-ground instruments, and sophisticated farm machinery to apply the appropriate amounts of seed, water, fertiliser, and so on, literally meter by meter, so that maximum efficiency in food production is realised.

Manufacturers increasingly incorporate elements of data analytics, GPS and remote sensing in a race to make farming more precise. A tractor that maps a field, drives itself and precisely calibrates its movements within inches to minimise wasted fuel, fertiliser or seed is already almost standard on the large-scale farms seen in many developed countries. The combination of food demand and rising farmers' expectations has forced agricultural companies to make big advances beyond auto-steer – introduced about 15 years ago – towards remote sensing and cloud-based data collection on the dozens of variables, from soil moisture to nutrient levels, that govern modern farming.

Mark Rosegrant, of the International Food Policy Research Institute, estimates that the rigorous adoption of "precision agriculture" technology could increase yield on any given farm by about 10 per cent, compared with average global annual crop yield increases of about 1 per cent.

On the negative side – the depletion of ocean resources as various fish varieties are harvested to near extinction, plus depletion of arable lands, either through development, or through agricultural practices that lead to erosion, salination (where the ground water and land become more salty), or simple loss of productivity through over use. Also, the use of inorganic fertilisers, pesticides and herbicides depletes the land over time. However positive efforts are being made with precision farming, sustainable agricultural practices, and more resistant crops to minimise the impacts. A related issue is the depletion of ground water used for irrigation, a problem in certain parts of the world, making crop irrigation technology a key factor in farming developments.

The issue of genetically modified (GM) foods is also an issue that has its fair share of supporters and critics. There is considerable consumer concern over the impact of genetically modified food, and recent trials have generated much criticism and protest over concerns about the difficulty of containing the crops within the designated trial area and cross contamination allowing genetically modified foods into the food chain without proper regulation or control. In areas where GM foods are being produced, they are subject to regulation and control by the governing bodies. Part of the problem with acceptance is the public's general lack of understanding of the issues and related safety measures that are in place.

## **Forum for the Future of Agriculture**

The following is a summary of the issues arising out of a recent Forum for the Future of Agriculture.

The Forum for the Future of Agriculture urged political leaders to address imbalances in the global agri-food system.

It suggested that converting additional lands for agricultural use is not an option. The way forward is to increase production on the available land while preserving ecosystems and biodiversity, and using fewer resources by applying state-of-the-art science and innovation. To enhance biodiversity on and around the farm, land managers and farmers need affordable, practical solutions which are easy to adopt. The Forum demanded new forms of public-private partnerships to strengthen research and extension services.

Farmers and land managers need access to the best technologies and innovation to be sustainable, productive and competitive. The Forum agreed that these reforms must support innovation with clear regulations – a vital condition for the transition to more sustainable global agriculture. In addition, financial resources are necessary to provide those public goods for which there is no current market.

The Forum also questioned whether the “greening” provisions of the European Common Agricultural Policy (CAP) reform were strong enough to meet their sustainability objectives. The conference called on European leaders to strengthen the ambitions of the CAP reform and to provide the necessary means for a sustainable European agricultural and food sector.

### *Reduce food waste*

Participants called for better regulation and greater incentives to reduce food waste throughout the food chain and get serious about providing nutritious food and quality information to its citizens. Furthermore, both retailers and EU citizens need to seriously reconsider their attitudes towards food waste; 30% of food going to waste in Europe is a real problem that needs urgent action.

### *Free trade*

The Forum called for an aggressive approach to tackle protectionism world-wide, focusing on where the biggest gains are to be made, namely in existing non-tariff trade barriers.

### *Food and feed scandals*

In view of the recent developments around the illegal use of horse meat in food products, the violations in the egg production sector or the appearance of aflatoxin (toxin produced by mould that can cause certain types of cancer in animals and can be harmful to humans) in feed stocks across Europe, the Forum agreed that full transparency, traceability and quality must continue to be the drivers for the EU food chain.

At the same conference a panel of distinguished speakers from the African states discussed the situation in Africa.

The first panel of the day was dedicated to the theme of Africa, and ways in which the continent’s patchy but sometimes impressive growth could be supported sustainably. Among the topics discussed by the distinguished panel were new hopes for African agriculture, the sometimes-unstable political system, creating insurance for farmers, and applying technology such as genetically modified organisms (GMOs). Opening the session, Minister for Agriculture and Rural Development Akinwumi ADESINA of Nigeria demonstrated the huge potential of his country’s agricultural sector. He was followed by two respondents; MEP Thijs BERMAN, member of the Committee for Development, and Alexander WOOLLCOMBE, UK and EU policy and Government Affairs Officer for the Bill and Melinda Gates Foundation.

The first theme to be discussed was the remarkable new growth on Africa’s farms and pastures; Minister ADESINA commented that while “*Nigeria has huge*

*potential, only 40% is properly used*”, but that his country also represented a rich resource of fresh water. As a response to this low figure, he noted that his country had begun an ambitious new program to generate wealth through government support of the private sector. While the minister did not condone so-called land-grabbing, he stated that *“we are looking for partnerships; local communities must have a share”* and called for a compact between business and communities. Alexander WOOLLCOMBE supported this notion, and called for *“transparency on all these deals”*. (Taken from a report of a FFA conference, 2013).

## Trends

The agricultural industry is closely linked to the weather. The drought in some countries of 2012 drove agricultural commodity prices up, while crop insurance helped guarantee farmers’ income despite low yields. Farmers had more money hence spent it on equipment. But 2013 saw bumper harvest which drove prices down, reducing incomes and making farmers think twice before investing in new equipment. The equipment business is very closely linked to the fortunes of the farmers, i.e. the customers. This is indicative of how weather can affect the industry.

The construction industry is very closely linked to social trends and the economy.



There has been a strong trend on a global scale for migration from rural areas that creates a need for infrastructure development. This is particularly true in developing economies where people are migrating to cities from rural areas like never before. It is estimated that more than 50% of the global population today live in urban areas, and this figure is expected to surpass 70% by 2050. Urbanization on such a scale furthers the

need for roads, bridges and shelter – and for the equipment required to build them. However economic conditions tend to suppress the spending on construction projects and as governments have been implementing austerity measures (reducing spending) this has also affected the need for new capital equipment over the last few years.

Forestry equipment is affected by concerns about de-forestation linked to the



climate effect, but sales to managed forestry schemes has held up well during the past few years. In less developed countries the de-forestation to divert land use to agriculture creates opportunities for land management schemes and advice to governments. The governments of less developed countries are also keen to improve the infrastructure of the country to facilitate the movement of food produce whilst also building new hospitals, schools and housing. Linking to government aid schemes and charitable foundations has been one

way the companies have tapped into this growth market; however, some companies have found themselves caught in the web of corruption that surrounds construction and aid projects in some countries. This has made companies wary

of devoting huge resources to these opportunities as they can represent a high-risk strategy.

## Performance of SMA Inc

The company's performance in 2013 was very strong despite the recent recession. However, the share price fell more than 2 per cent after the US Consumer Product Safety Commission reported that SMA Inc. had agreed to recall about 7,000 of its compact Series 7 utility tractors on the risk of serious injury or death to the operator. These tractors are sold to small or medium sized farms and whilst they have some technology available are not as sophisticated as the larger tractors sold to large-scale farms. The largest market for 'high-tech' tractors is in the USA and Canada where large scale farming is common place. The typical sale to these farms are a tractor that is capable of synchronising the movements of a grain cart travelling alongside it as it harvests, as well as sensors within the machines that send out alerts to the farmer and the local SMA dealer if it fails.



Another high-end product allows a single driver to control two tractors at the same time, and many systems will allow one tractor to pick up exactly where another has left off planting so as not to waste seed. In all cases someone must be present in the remotely controlled tractor. But that is a reflection of liability issues – a malfunctioning robotic tractor tending fields along a Midwestern highway could wreak havoc – rather than any technological deficiency, says Adam Fleck, analyst at Morningstar.

"The logical next step would be removing the human from the machine," he says. "We have the capability to do it already."

Advances in mobile telephone technology will also have to keep pace, says Aguiar De Souza, of Agco. "In the future you may be able to use your cell phone [to control a tractor], but we may need to have something like 7G technology [instead of 4G] to make sure the signal is reliable," he says.

While tractor makers keep their feet rooted on the ground, drones or UAV's (unmanned aerial vehicles) are appearing on the horizon. The drones industry says that 80 per cent of demand is likely to come from farmers, but tractor companies say they are not currently working on their own models, which are forbidden for commercial use in the US. Instead, analysts believe companies such as SMA Inc and its competitors are more likely to acquire, or partner with unmanned aerial vehicle makers.

Meanwhile agricultural companies are trying to make better use of the vast caches of data that farmers generate and, in the case of yield and soil mapping, have tracked themselves for years.





"They know way too much already," he says, sitting in the cab of a SMA tractor that is steering itself as he harvests a field of soyabeans. "I don't want to give them any more than they already have."

(Reporting by the Financial Times)

### The CEO of SMA Inc says:

The company has recently opened offices in Brazil and China that bring together employees of different divisions in a common setting.

By operating as a more integrated enterprise – one of the principles underlying our growth strategy – we can leverage the complementary strengths of all our businesses. This adds further momentum to our growth efforts.

Even as we extend our global reach, the U.S. and Canadian markets remain vitally important. Last year, the region accounted for more than 60 percent of our sales and revenues as well as most of our profit and spending on capital programs.

We are committed to zealously defending our market-leading position with production farmers and other customers in the U.S. and Canada – and are investing accordingly.

A cornerstone of SMA Inc.'s success throughout its history, is our corporate-citizenship efforts which continued making a meaningful impact in 2013.

Thousands of employees celebrated the company's 175<sup>th</sup> anniversary through volunteer activities such as planting trees, remodelling schools and assisting local food banks. In this vein, employees enthusiastically embraced the company's recently launched volunteerism initiative, recording more than 40,000 hours of volunteer service. To further encourage employees to give back, a program was introduced in the U.S. that makes cash grants available to charitable organizations at which individual employees devote at least a week of time annually.

In other actions, the company and foundation continued supporting education programs with an emphasis on science, technology, engineering and math (STEM) activities.

The annual report states that the Board of Directors believe the factors affecting the growth of the agricultural products include land and real estate values, available acreage for farming, the land ownership policies of various governments, changes in government farm programs and policies (including those in Argentina, Brazil, China, the European Union, India, Russia and the U.S.), international reaction to such programs, changes in and effects of crop insurance programs, global trade agreements, animal diseases and their effects on poultry, beef and pork consumption and prices, crop pests and diseases, and the level of farm product exports (including concerns about genetically modified organisms).



Factors affecting the outlook for the company's turf and construction utility equipment sales include general economic conditions, consumer confidence, weather conditions, customer profitability, consumer borrowing patterns, consumer purchasing preferences, housing starts, infrastructure investment, spending by municipalities and golf courses, and consumable input costs.

**Our challenge** (as stated in the Annual report) is to capture anticipated tailwinds by attracting more customers to the SMA experience across our six key geographies (US/Canada, the European Union countries, Brazil, Commonwealth of Independent States/Russia, China, India) in a manner that meets local needs while leveraging our global scale.

**The critical success factors in order to do this are:**

**Deep Customer Understanding (DCU)** - Understanding our customers' most important local needs, and translating these into winning products and services better than any competitor.

**Deliver Customer Value (DCV)** - Profitably translating our customers' needs into products and services at prices our customers are willing to pay.

**World-Class Distribution System** - Enabling our customers around the world to participate in the unique SMA Inc. experience by developing world-class channels of dealers that are professional, profitable and sustainable businesses, oriented to the customer, aligned with SMA Inc. and achieving market pre-eminence.

**Grow Extraordinary Global Talent** - Enabling pre-eminent customer value and business results through extraordinary leaders and engaged employees delivering aligned high-performance teamwork globally.

The key competitors are:

<b>Company</b>	<b>Revenue (TTM)</b>	<b>Net income - Profit (TTM)</b>	<b>Market cap</b>	<b>Employees</b>
CP Inc.	57.33bn	3.48bn	53.61bn	122402
CRN Limited	14.21bn	562.52m	8.69bn	87913
FE plc	3.27bn	448.12m	13.99bn	16529
GA Group Pty	7.69bn	460.45m	8.47bn	24730
K Limited	18.97bn	1.40bn	20.74bn	46730
K Inc	13.01bn	925.53m	19.28bn	31436
S & T Limited	5.92bn	457.90m	8.75bn	34887
<b>SMA Inc</b>	<b>38.14bn</b>	<b>3.42bn</b>	<b>31.20bn</b>	<b>66900</b>
Z S T Limited	6.22bn	683.82m	7.04bn	31707

Data as of 31/03/2014. Currency figures normalised to SMA Inc's reporting currency: US Dollar USD. TTM is the Trailing Twelve Months i.e. the last four quarters added together.

Z S T Limited has a large science and technology division that is involved primarily in the development of products to aid precision farming.

K Inc. and CRN Limited are primarily engaged in the construction equipment business.

FE plc is primarily engaged in the development and manufacture of forestry equipment.

The other companies provide a range of capital equipment to farming and construction companies.

### **A recent meeting of the executive management team**

The future strategy was the main subject of the recent Executive Management Team (EMT) meeting. It was generally agreed that the past performance has been satisfactory given the difficult economic climate that the company had faced. However, it was also recognised and agreed that in order to grow there was a need to take positive action.

The VP Finance had given an overview of the company's financial position. A selection of the slides and Income Statement and Balance sheet are shown in appendices A-C. An interesting factor shown in the five year trend is that the financial crisis in 2008 and subsequent fall into economic recession did not hit the company until 2010. It was believed that this was due to customers committing

to expenditure for the year ahead, and it was only once the recession took hold that replacement equipment was delayed. Although sales are now increasing this may be hiding a lag in potential growth as customers wait until they see clear signs of economic recovery before investing heavily in new equipment.

The CEO was keen to see more product development and saw a strengthening of the research and development functions in both product divisions. Whilst it was recognised that the recent issue with the product recall was a concern, it should not deter the company from launching new products, particularly in the area of precision farming.

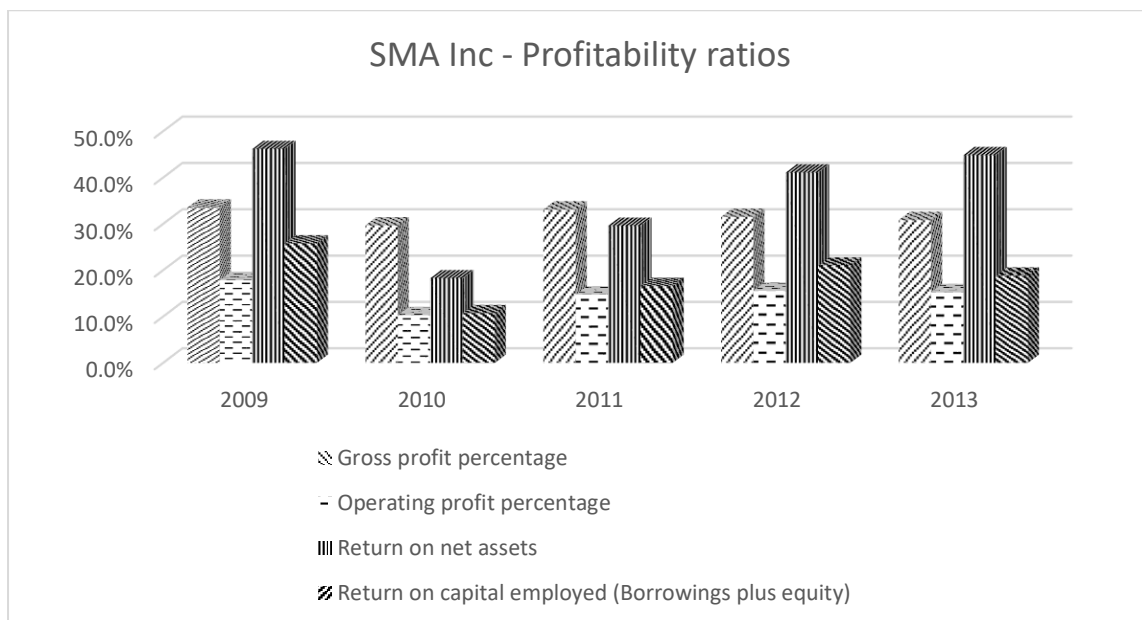
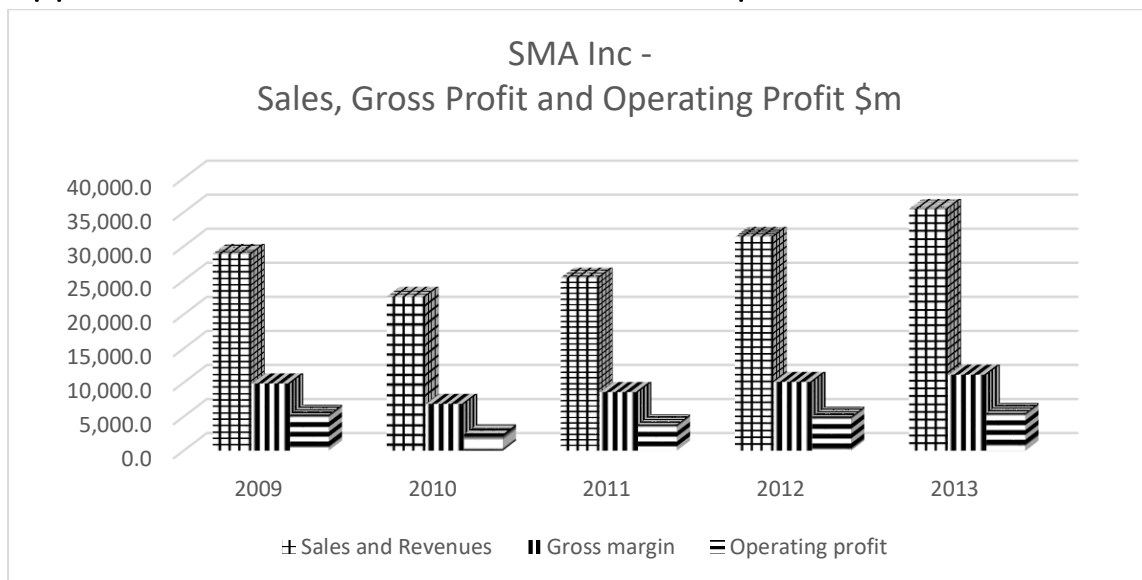
The CEO felt that they were now placing too much emphasis on the financial performance and although the share price had dropped in response to the product recall he suggested that the EMT should be looking at a much wider review of performance measures. He suggested that they adopt the Balanced Scorecard as the basis of a performance management system and asked each member of the EMT to think about the performance measures that would be important for their area.

The Technical Director suggested that one way to gain a competitive advantage in the precision farming sector would be to join forces with a data analytics company that could provide the expertise to develop further products to analyse trends from the meta-data collected and to turn this into useful information for the farmers. This would go further than the GPS (global position system) and control information provided by existing technologies. He also believed that this could be utilised in improving forestry management and would therefore be an investment that benefited both product divisions. There was some discussion about whether acquiring a company with the analytics capability would be more beneficial than entering into a joint venture, as this would give SMA more control over the product development. The Technical Director had identified a potential target company based in the UK which had a growing reputation for innovative product solutions. It was a private limited company imaginatively named Data Analytics Limited. The accounts of Data Analytics Limited are shown in appendix D.

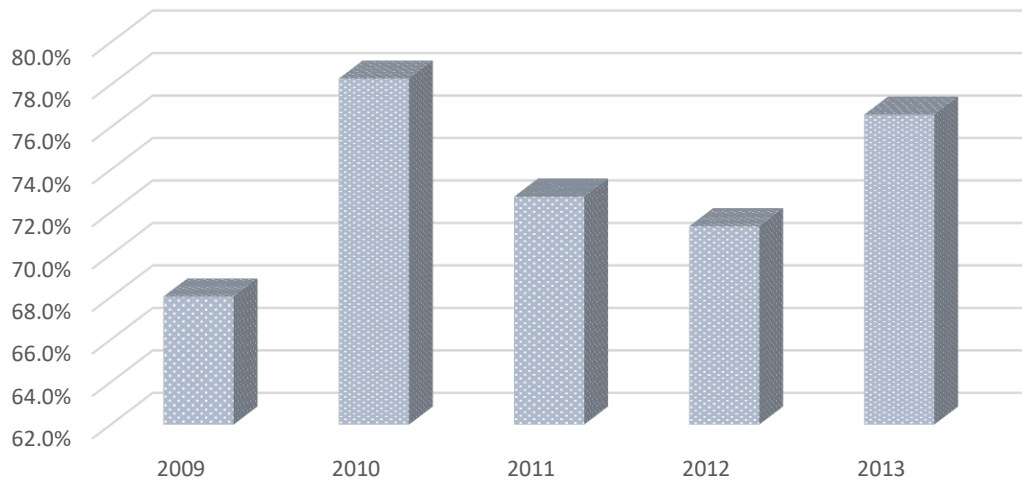
Data Analytics Limited is a UK based company that is recognised as being an innovative company in the industry with some impressive clients. The UK Board of Directors (equivalent to the EMT) of Data Analytics Limited are keen to expand its market reach and the Technical Director (of SMA Inc.) believes that the Board of Data Analytics would be willing to consider an offer for the company, as having recently increased the investment and taken on board loan capital they are finding that a further significant investment, or a company willing to back them, would be required to develop their products into world leading products. The Board of Directors of Data Analytics have recently grown the company by the acquisition of two small, but specialist companies, which were financed by increasing the share capital and loans. The CEO (of SMA Inc.) would liaise with the Technical Director and make some tentative enquires about a possible approach to the Board of Directors at Data Analytics Limited.

The VP Sales and Marketing (SMA Inc) also reported that the on-going talks with the Nigerian Government about a potential project to provide farming equipment and expertise to small farms to help improve crop yields were going well, and that this could prove to be a very good strategy of getting the products known, not just in the farming communities of Nigeria, but also in Africa and the African Union. However, there were concerns expressed that the low margins and high risks involved might outweigh the benefits. The deal involved SMA providing the equipment, insurance and maintenance support for a fixed fee that would be paid over a predetermined lifetime of the equipment so that the farmers could essentially pay for it out of earnings. The scheme would be guaranteed by the Nigerian Government. The CEO wondered whether focusing on large customers that paid for the equipment and insured it themselves, plus paying for a maintenance contract separately, were more profitable in the long run. The VP Sales and Marketing agreed to investigate this and report back at the next EMT meeting in four weeks' time.

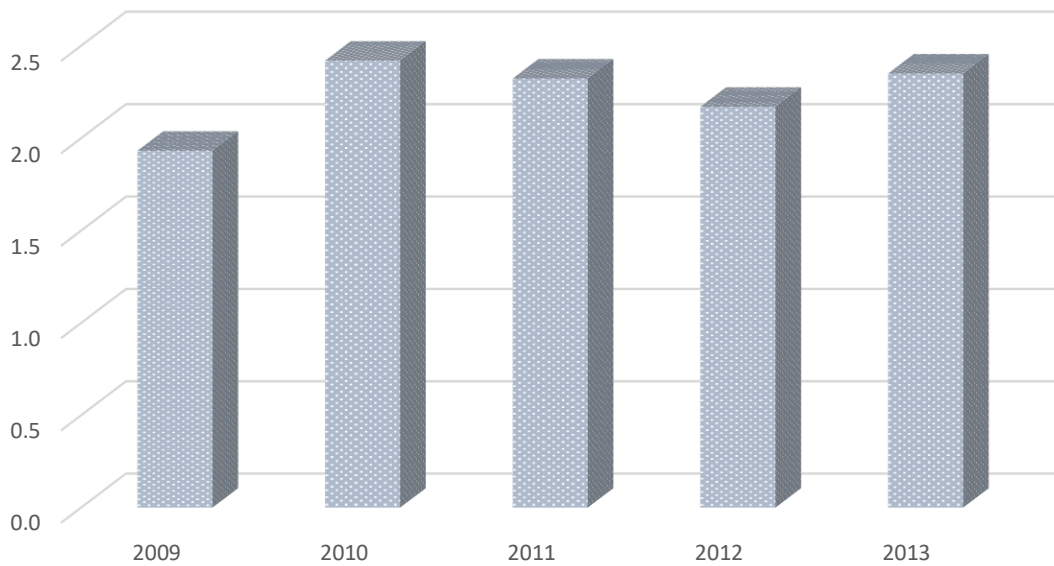
## Appendix A – Slides from the VP Finance’s presentation



SMA Inc - Gearing ratio (Borrowings / borrowings plus equity)

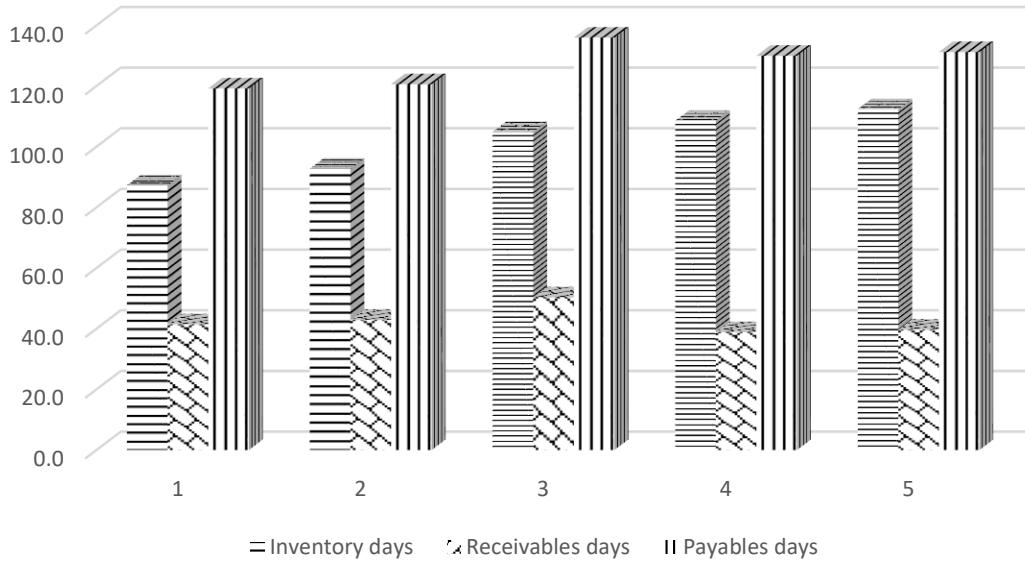


SMA Inc - Current ratio

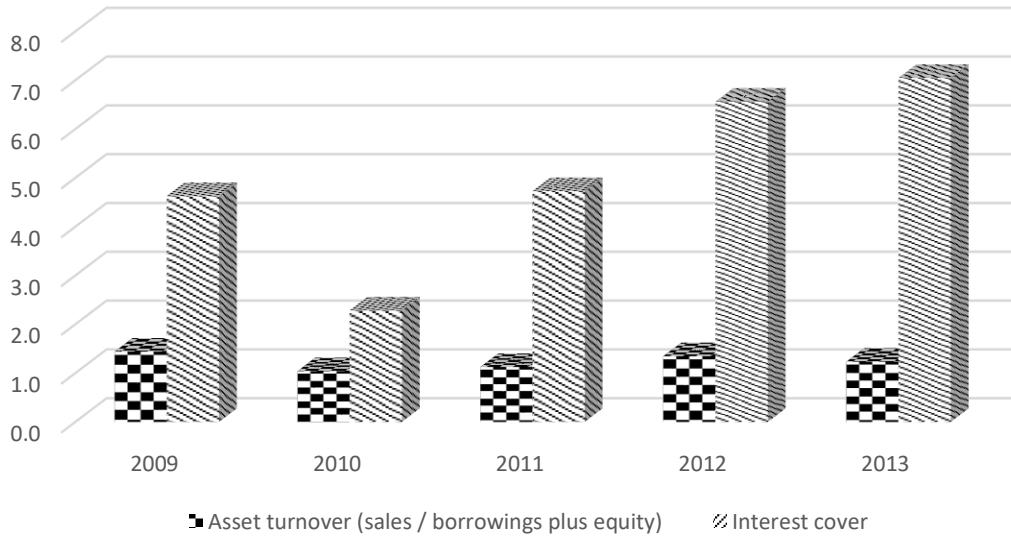


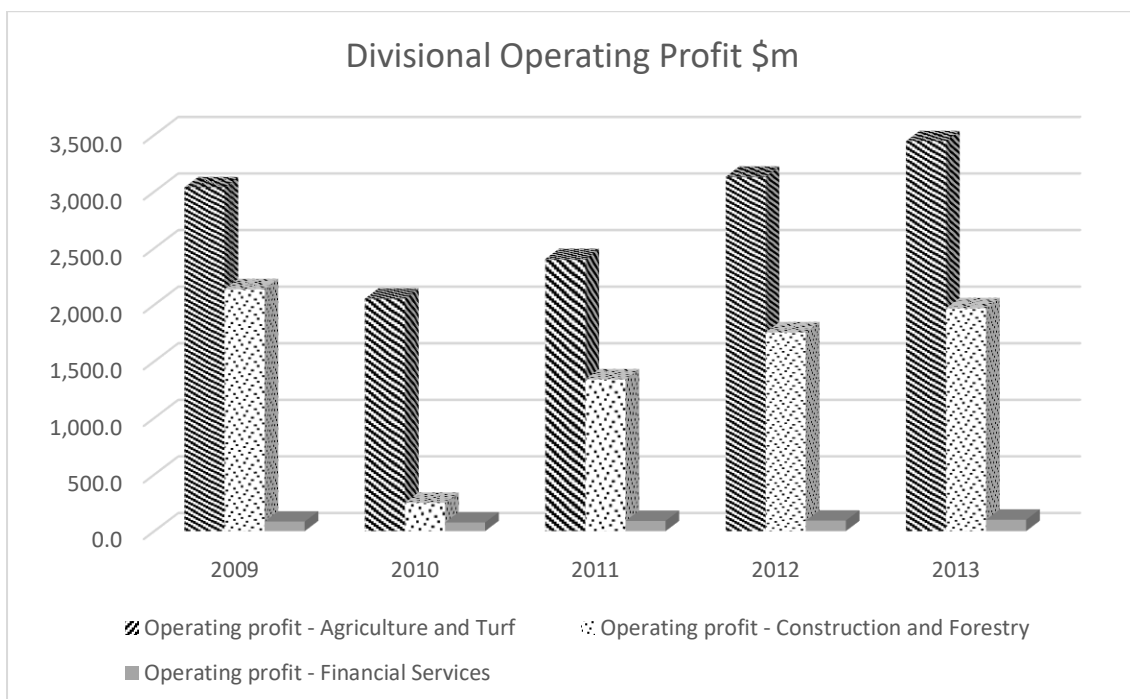
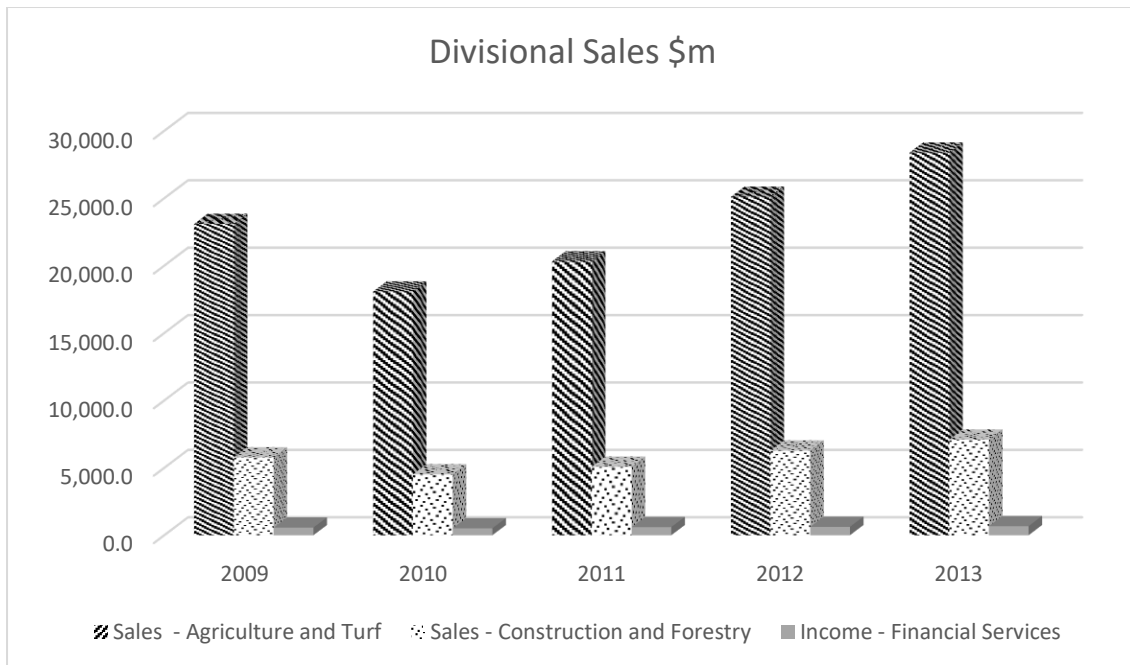


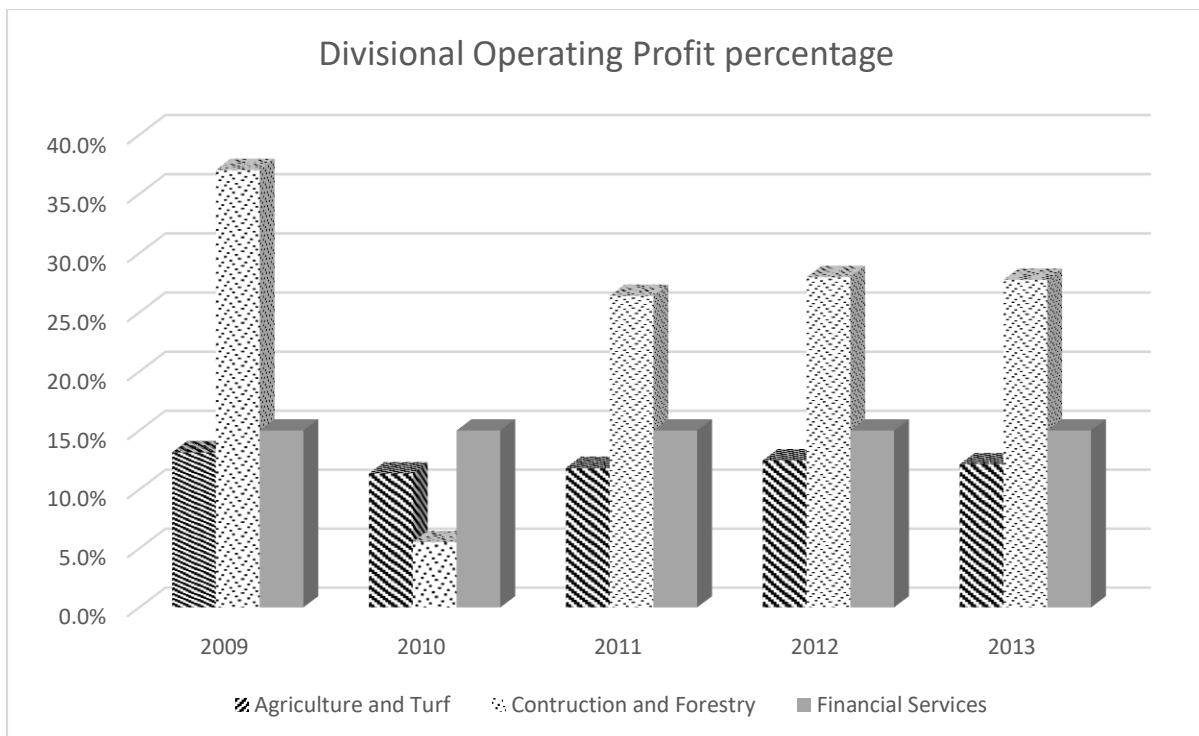
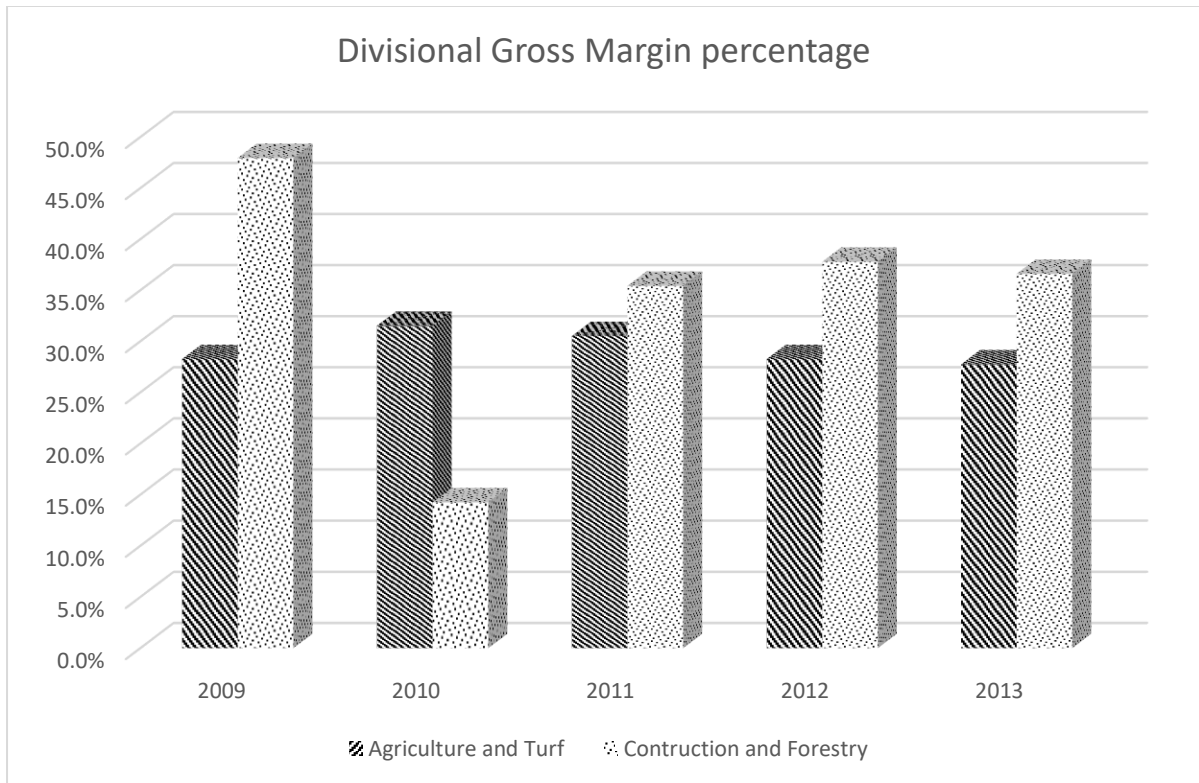
### SMA Inc - Working Capital Management



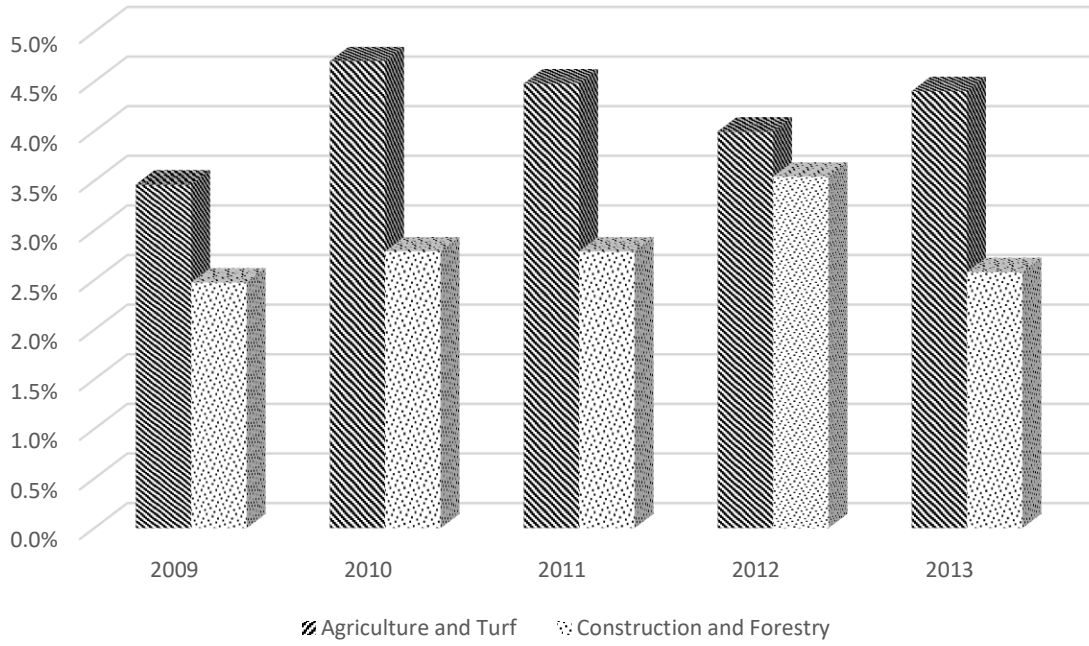
### SMA Inc - Asset turnover and interest cover







Divisional R & D expenditure as a percentage of sales



## Appendix B – SMA Inc - Divisional performance

All figures in \$ millions

<b>Agriculture and Turf</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Sales</b>	<b>23,097.5</b>	<b>18,078.6</b>	<b>20,318.8</b>	<b>25,111.0</b>	<b>28,385.8</b>
Cost of sales	16,569.4	12,379.6	14,118.9	18,014.4	20,509.4
<b>Gross margin</b>	<b>6,528.1</b>	<b>5,699.0</b>	<b>6,199.9</b>	<b>7,096.6</b>	<b>7,876.4</b>
Research and development expenses	800.1	850.9	910.7	1,003.8	1,250.4
Selling, administration and general expenses	2,516.2	2,569.4	2,698.3	2,812.4	3,013.6
Other operating expenses	173.6	224.7	186.3	148.6	166.3
<b>Operating profit</b>	<b>3,038.2</b>	<b>2,053.9</b>	<b>2,404.6</b>	<b>3,131.7</b>	<b>3,446.1</b>
	13.2%	11.4%	11.8%	12.5%	12.1%
<b>Construction and Forestry</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Sales</b>	<b>5,774.4</b>	<b>4,519.6</b>	<b>5,079.7</b>	<b>6,277.7</b>	<b>7,096.4</b>
Cost of sales	3,005.4	3,875.6	3,279.9	3,905.0	4,498.4
<b>Gross margin</b>	<b>2,769.0</b>	<b>644.0</b>	<b>1,799.8</b>	<b>2,372.7</b>	<b>2,598.0</b>
Research and development expenses	143.0	126.1	141.7	222.4	183.2
Selling, administration and general expenses	444.0	211.2	270.4	356.3	403.4
Other operating expenses	43.4	56.2	46.6	37.2	41.6
<b>Operating profit</b>	<b>2,138.6</b>	<b>250.6</b>	<b>1,341.1</b>	<b>1,756.9</b>	<b>1,969.9</b>
	37.0%	5.5%	26.4%	28.0%	27.8%
<b>Financial services</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Income</b>	<b>565.7</b>	<b>514.2</b>	<b>606.1</b>	<b>623.8</b>	<b>674.9</b>
Selling, administration and general expenses	480.8	437.1	515.2	530.2	573.7
<b>Operating profit</b>	<b>84.9</b>	<b>77.1</b>	<b>90.9</b>	<b>93.6</b>	<b>101.2</b>
	15.0%	15.0%	15.0%	15.0%	15.0%

## Appendix C – SMA Inc Financial Statements

All figures in \$ millions

### Consolidated income statement

	2009	2010	2011	2012	2013
Sales and Revenues	26,369.2	21,270.3	24,179.3	30,089.9	34,175.8
Finance and interest income	2,068.4	1,842.1	1,825.3	1,922.6	1,981.3
<b>Total income</b>	<b>28,437.6</b>	<b>23,112.4</b>	<b>26,004.6</b>	<b>32,012.5</b>	<b>36,157.1</b>
Cost of sales	19,574.8	16,255.2	17,398.8	21,919.4	25,007.8
<b>Gross margin</b>	<b>8,862.8</b>	<b>6,857.2</b>	<b>8,605.8</b>	<b>10,093.1</b>	<b>11,149.3</b>
Research and development expenses	943.1	977.0	1,052.4	1,226.2	1,433.6
Selling, administration and general expenses	2,960.2	2,780.6	2,968.7	3,168.7	3,417.0
Other operating expenses	697.8	718.0	748.1	716.0	781.5
<b>Operating profit</b>	<b>4,261.7</b>	<b>2,381.6</b>	<b>3,836.6</b>	<b>4,982.2</b>	<b>5,517.2</b>
Interest charges	1,137.0	1,042.4	811.4	759.4	782.8
<b>Profit before taxation</b>	<b>3,124.7</b>	<b>1,339.2</b>	<b>3,025.2</b>	<b>4,222.8</b>	<b>4,734.4</b>
Taxation	1,111.2	460.0	1,161.6	1,423.6	1,659.4
<b>Profit for the year</b>	<b>2,013.5</b>	<b>879.2</b>	<b>1,863.6</b>	<b>2,799.2</b>	<b>3,075.0</b>

### Balance Sheet

#### Non-Current assets

Plant and equipment - net book value	7,649.0	8,889.8	8,539.9	8,421.8	9,777.8
Investments	224.4	212.8	244.5	201.7	215.0
Goodwill	1,224.6	1,036.5	998.6	999.8	921.2
Other intangible assets	161.4	136.3	117.0	127.4	105.0
<b>Total non-current assets</b>	<b>9,259.4</b>	<b>10,275.4</b>	<b>9,900.0</b>	<b>9,750.7</b>	<b>11,019.0</b>

#### Current assets

Inventories	4,680.4	4,130.6	4,999.2	6,520.6	7,697.8
Trade receivables - net	3,279.3	2,655.3	3,503.0	3,342.5	3,858.8
Finance receivables - net	17,661.8	18,363.1	19,920.5	22,828.5	25,776.7
Other receivables	664.9	864.5	925.6	1,330.6	1,790.9
Marketable securities	977.4	192.0	227.9	787.3	1,470.4
Cash and cash equivalents	2,211.4	4,651.7	3,790.6	3,647.2	4,652.2
<b>Total current assets</b>	<b>29,475.2</b>	<b>30,857.2</b>	<b>33,366.8</b>	<b>38,456.7</b>	<b>45,246.8</b>

#### Current Liabilities

Short term borrowings	8,520.5	7,158.9	7,534.5	9,629.7	9,967.3
Trade payables	6,393.6	5,371.4	6,481.7	7,804.8	8,988.9
Other payables	169.2	55.0	203.5	117.7	135.2
Deferred taxes	171.8	167.3	144.3	168.3	164.4
<b>Total current liabilities</b>	<b>15,255.1</b>	<b>12,752.6</b>	<b>14,364.0</b>	<b>17,720.5</b>	<b>19,255.8</b>

#### Net current assets

<b>14,220.1</b>	<b>18,104.6</b>	<b>19,002.8</b>	<b>20,736.2</b>	<b>25,991.0</b>
-----------------	-----------------	-----------------	-----------------	-----------------

<b>Non-current liabilities</b>					
Borrowings	13,898.5	17,391.7	16,814.5	16,959.9	22,453.1
Retirement benefits and other liabilities	3,048.3	6,165.5	5,784.9	6,712.1	7,694.9
<b>Total non-current liabilities</b>	<b>16,946.8</b>	<b>23,557.2</b>	<b>22,599.4</b>	<b>23,672.0</b>	<b>30,148.0</b>
<b>Net assets</b>	<b>6,532.7</b>	<b>4,822.8</b>	<b>6,303.4</b>	<b>6,814.9</b>	<b>6,862.0</b>
<b>Equity</b>					
Common stock (Ordinary shares)	2,934.0	2,996.2	3,106.3	3,251.7	3,352.2
Retained earnings	3,598.7	1,822.5	3,184.0	3,548.6	3,489.9
Other reserves	0.0	4.1	13.1	14.6	19.9
<b>Total equity</b>	<b>6,532.7</b>	<b>4,822.8</b>	<b>6,303.4</b>	<b>6,814.9</b>	<b>6,862.0</b>

## Appendix D – Data Analytics Limited –

### Financial Statements

All figure in £,000s

#### Consolidated income statement

	2009	2010	2011	2012	2013
Revenue					
Product revenue	849.0	772.0	933.0	1,122.0	1,297.0
Service revenue	918.0	933.0	1,002.0	1,265.0	1,366.0
<b>Total revenue</b>	<b>1,767.0</b>	<b>1,705.0</b>	<b>1,935.0</b>	<b>2,387.0</b>	<b>2,663.0</b>
Cost of products	302.0	269.0	306.0	381.0	416.0
Cost of services	511.0	502.0	542.0	688.0	758.0
<b>Gross margin</b>	<b>954.0</b>	<b>934.0</b>	<b>1,087.0</b>	<b>1,318.0</b>	<b>1,489.0</b>
Research and development expenses	108.0	117.0	147.0	174.0	183.0
Selling, administration and general expenses	508.0	483.0	526.0	663.0	728.0
<b>Operating profit</b>	<b>338.0</b>	<b>334.0</b>	<b>414.0</b>	<b>481.0</b>	<b>578.0</b>
Interest charges	0.0	0.0	0.0	0.0	0.0
<b>Profit before taxation</b>	<b>338.0</b>	<b>334.0</b>	<b>414.0</b>	<b>481.0</b>	<b>578.0</b>
Taxation	88.0	80.0	113.0	128.0	159.0
<b>Profit for the year</b>	<b>250.0</b>	<b>254.0</b>	<b>301.0</b>	<b>353.0</b>	<b>419.0</b>

#### Balance Sheet

##### Non-Current assets

	2009	2010	2011	2012	2013
Property and equipment - net book value	197.0	179.0	164.0	148.0	179.0
Capitalised software, net	80.0	102.0	116.0	140.0	173.0
Goodwill	110.0	109.0	136.0	742.0	932.0
Acquired intangible assets				163.0	186.0
Other intangible assets	28.0	27.0	61.0	11.0	62.0
<b>Total non-current assets</b>	<b>415.0</b>	<b>417.0</b>	<b>477.0</b>	<b>1,204.0</b>	<b>1,532.0</b>

##### Current assets

Inventories	44.0	47.0	65.0	61.0	47.0
Trade receivables - net	451.0	387.0	402.0	494.0	668.0
Other receivables	78.0	57.0	56.0	85.0	90.0
Short-term investments	40.0	0.0	0.0	0.0	0.0
Cash and cash equivalents	402.0	661.0	883.0	772.0	729.0
<b>Total current assets</b>	<b>1,015.0</b>	<b>1,152.0</b>	<b>1,406.0</b>	<b>1,412.0</b>	<b>1,534.0</b>

##### Current Liabilities

Trade payables	99.0	102.0	102.0	97.0	141.0
Other payables	83.0	76.0	70.0	90.0	132.0
Deferred revenue	255.0	256.0	263.0	339.0	375.0
Other current liabilities	103.0	109.0	134.0	169.0	158.0
<b>Total current liabilities</b>	<b>540.0</b>	<b>543.0</b>	<b>569.0</b>	<b>695.0</b>	<b>806.0</b>



<b>Net current assets</b>	<b>475.0</b>	<b>609.0</b>	<b>837.0</b>	<b>717.0</b>	<b>728.0</b>
<b>Non-current liabilities</b>					
Borrowings	0.0	0.0	0.0	290.0	274.0
Retirement benefits and other liabilities	83.0	83.0	85.0	77.0	73.0
Other liabilities	30.0	33.0	40.0	60.0	134.0
<b>Total non-current liabilities</b>	<b>113.0</b>	<b>116.0</b>	<b>125.0</b>	<b>427.0</b>	<b>481.0</b>
<b>Net assets</b>	<b>777.0</b>	<b>910.0</b>	<b>1,189.0</b>	<b>1,494.0</b>	<b>1,779.0</b>
<b>Equity</b>					
Ordinary shares (Common Stock)	574.0	624.0	692.0	767.0	900.0
Retained earnings	192.0	272.0	485.0	711.0	850.0
Other reserves	11.0	14.0	12.0	16.0	29.0
<b>Total equity</b>	<b>777.0</b>	<b>910.0</b>	<b>1,189.0</b>	<b>1,494.0</b>	<b>1,779.0</b>

## Potential acquisition of Data Analytics Limited.

The CEO and the Technical Director of MA Inc. have had exploratory talks with the key Board members of Data Analytics Limited and they appear to be receptive to an offer. Based on a similar takeover recently in the industry the CEO believes that a figure based on the present value of 5 years purchase of operating profits would be an acceptable offer (i.e the present value 5 times the value of the operating profit of Data Analytics Limited for 2013).

The VP Finance has stated that a cost of capital figure of 10% is recommended for use as the discount rate in investment appraisal calculations and that the exchange rate is currently £1 - \$1.5.

## Acquisition of Data Analytics Limited.

The EMT of SMA Inc have assessed how they feel the performance of Data Analytics Limited would change over the next five years if they owned it. The Board believe that they can increase sales from the existing level reported in 2013 by 10% in each of the next five years (i.e. 10% increase on the sales value in each year – compound), and that a one off reduction in R & D expenditure of 15% could be achieved via the sharing of resources. The VP Marketing and the VP Operations of SMA Inc are also confident that a one off saving of 10% on Sales, Administration and General Expenses (SAG) could be achieved on current levels. Following the reduction in R & D and SAG Expenses in the first year of ownership they believe that these expenses would essentially remain at the same level in years 2 – 5.

## Agricultural and Turf – customer profitability

The EMT of SMA are concerned about the lack of growth in profitability of the Agriculture and Turf division. You have been asked to ascertain the relative profitability of the customer segments (large, medium and small customers) of the A & T division.

The following information has been gathered by analysing past data and talking to the managers of the various functional departments.

The analysis of sales showing the total amount sold to large, medium and small customers is shown below.

Customer size	Large	Medium	Small	Total
Sales value \$m	19,870.1	5,677.2	2,838.5	28,385.8

The cost of sales is allocated based on the sales data as the costs have a direct relationship with the sale price of the products.

The majority of the research and development is undertaken based on feedback from the larger customers and the Chief Development Officer, who manages the R & D department, suggests that a sensible way to allocate

the cost would be 70% to the larger customers, 20% to the medium customers and 10% to smaller customers.

The sales, administration and general expenses can be split into the categories shown below, together with the cost driver that is considered the most appropriate for each cost category:

<b>Expense description</b>	<b>Costs \$m</b>	<b>Cost driver</b>
Sales force salaries	91.3	Average number of visits: proportion large 50%, medium 30%, and small 20%.
Training of sales force	10.5	
Travel and entertaining	50.3	
Order processing	100.1	No of orders: proportion large 20%, medium 40%, and small 40%.
Marketing expenditure	831.9	Sales value.
Training of technical support staff	12.6	Sales value
Discount settlements	140.3	Sales value
Website maintenance	75.2	Split per marketing manager estimate – 10% large customers, 30% medium, and 60% small customers.
Distribution to customer	1004.3	Per kilometre mile: proportion large 20%, medium 30%, and small 50%.
Establishment costs associated with showroom	300.5	It is the small to medium sized customers that frequent the showrooms – large customers tend to be acquired via direct contacts and visits by sales staff. Estimated split: large customers 0%, medium 40%, small 60%.
Costs of specific inventory held	75.3	Allocated to large customers only, as medium to small customers tend to purchase standard equipment.
Allowance for bad debts	128.1	These are more likely with medium and smaller customers – marketing manager estimates 10% large customers, 50% medium, and 40% small customers.
Amount of costs that are to remain unallocated such as general office costs, and building depreciation.	193.2	Unallocated to customers – to remain as general overhead costs.

The other operation costs shown in the Income Statements cannot meaningful be attributed to specific customer groupings.

## Contract with the Nigerian Government

The VP Sales and Marketing sees the contract with the Nigerian government as being an excellent opportunity to increase its presence in the African market and could yield sales values of \$20m in the first year. The contract is in early discussions but it would appear that the level of costs incurred, and hence profitability, would be of a similar nature and proportion to that of servicing the small-scale customers in its existing markets. The only exception would be that there would be a significant saving (as much as 80%) on sales force and selling expenses as the customers would be referred to SMA via the government farming support scheme. If this was successful, the VP Sales and Marketing believes that it could be used as a showcase for selling its products across the whole of the African continent. The VP Finance believes that a financing cost of 1% of sales value should be included in any estimates of profitability of the Nigerian contract.

## New product development and research and development expenditure

The CEO of SMA Inc is concerned about the impact that the product recall of the series 7 tractor has had on the reputation of the company. The Technical Director and VP Sales and Marketing have both indicated that the next generation of tractors needs to be not only at the forefront of technology but also at a price that most of their potential customers will be able to afford. The VP Finance has suggested that if they all work together, they could utilise the technique of target costing to produce a product that is both technologically advanced and at a price that the customer can afford.

## Performance of the company

The CEO feels that they should monitor the performance of the company by using more than just the financial performance. The Agricultural and Turf division operates in a similar manner to the Construction and Forestry division in that they both design, manufacture and sell equipment, and he feels that they could develop a Balanced Scorecard for these two divisions along similar lines that would monitor more than just the financial numbers. The VP Finance agreed to look at developing a Balanced Scorecard that could be used to monitor these two divisions.

**[End of case study]**

## PRESENT VALUE TABLE

Present value of 1 ie  $(1 + r)^{-n}$  Where  $r$  = discount rate,  $n$  = number of periods until payment.

<i>Periods</i> (n)	<b>Discount rates ( r )</b>									
	<b>1%</b>	<b>2%</b>	<b>3%</b>	<b>4%</b>	<b>5%</b>	<b>6%</b>	<b>7%</b>	<b>8%</b>	<b>9%</b>	<b>10%</b>
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239
	<b>11%</b>	<b>12%</b>	<b>13%</b>	<b>14%</b>	<b>15%</b>	<b>16%</b>	<b>17%</b>	<b>18%</b>	<b>19%</b>	<b>20%</b>
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.169	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065