Question 1:

a) The Australian Bureau of Statistics (ABS) is "Australia's national statistical agency [1]." This organisation constantly portrays itself as the most "trusted" statistic agency in Australia by alluding to the Australian Bureau of Static Act, which essentially endorses the organisation as the official statistics agency for Australia [2]. The values of an organisation are the beliefs and ideals that shape the organisation's actions [3]. It is a necessity for many organisations as it aids in achieving its goals and missions [3]. The Australian Bureau of Static values " integrity, relevance, service, aces for all, professionalism, and trust for providers [4]." Since this organisation is part of the Australian public service agency, they must also abide by the Australian public service values as well [4].

b) The Australian Bureau of Statistics is part of an industry that performs activities of a governmental nature- the Public administration and defence; compulsory social security [5]. This organisation can be classified using the UN Nation's classification system according to its industry. The Australian Bureau of Statistics is in section O, Division 84, Group 841, and class 8411. Another way that the ABS can be classified is according to its size. Home to 2,824 employees, the Australian Bureau of Statistics is termed a “large organisation” [6]

c) Formed in 1905, the Australian Bureau of Statistics provides a range of statistics for environmental, economic, population, and social issues [6]. Its mission is to help inform Australia's decisions by working together to deliver statistics, objective data, and insights [7]. The aims are expressed in list format and bullet points to make it stand out to the general public and convey the professionalism of the ABS. The bullet points help portray the ABS as organised.

d) In order to achieve the missions, the Australian Bureau of Statistics focuses on two main strategic priorities [7]. The first strategic priority is to provide high-quality official statistics [7]; this is achieved by producing a "statistical work program" that takes input from key stakeholders and collaborates with strategic advisory groups such as the economic statistic advisory [7]. The second strategic priority is providing new statistical solutions to increase the worth of public data. This priority is achieved through providing " new statistical insight" and making the public more aware of the data [7]. Therefore, the missions can be achieved by focusing two strategic priorities.

e) The structure of an organisation differs from organisation to organisation. The Australian Bureau of Statistics can be classified into multiple organisational structures such as functional and divisional [37]. The Australian Bureau of Statistics can be considered a functional organisation structure due to the fact that part of the organisation is separated according to their role. The organisational chart reinforces the notion that the organisation is a functional structure by showing how parts of the organisation are separated according to their roles. For example, the statistical service, data management, and financial roles are all separated [37]. The downside for this type of structure is

that workers will be less motivated due to them having a limited outlook on the goals of the oganisation as a whole.

f) An organisation can also be divided into divisional units [37]. This organisational structure is called a "divisional organisation." The Australian Bureau of Statistics is a divisional organisation whereby the units are divided according to their geographic location and services. The organisational chart proves this by showing the different geographical location of the offices (Wa office, Nt office and Victoria office) [37]. The organisational chart also proves that the units are divided by services; for example, in the chart, the analytic service and statistical service are divided.

g)

The culture of the organisation depends on the structure of the ABS system. The system can be structured as functional organisation structure and a divisional organisation structure. Because the system is structured this way, the type of culture that the Australian Bureau of Statistics system can adopt is a hierarchical culture. This type of culture values steadiness and efficiency, which aligns with the Australian Bureau of Statistics' values too. The function of the ABS also aligns with the culture as well; one of the functions of the ABS is to produce statistics efficiently. Therefore, the reason that the Australian Bureau of Statistic is the official and most trusted statistical agency service out there today is because the organisation's structure, function, and culture all align. The business strategies for the ABS are also influenced by the organisation's function, culture and structure. The business strategy of allowing the use of statistics efficiently and safely was influenced by the organisation's culture.

2A) There are many stakeholders in an information system. The stakeholders of an organisation are essentially the people or group of people that are influence an organisation. A widely-known information system for the Australian Bureau of Statistics is the census [9]. This information system aims to collect data about every person and household to help shape parks, roads, hospital, transport, and infrastructure [9]. The stakeholders for the census information system include the general public, as well as media and private sector companies [10]. The general public's role is to provide the data for the census so it can then be correlated and put to use [10]. The media's role is to inform Australians about the socio-economic situation of their country [10]. Finally, the private sector companies aim to use the census data to help make the decisions the company may need to make, such as- where to locate its enterprise. [10]

2B) An information system may be a part of a super system and the information system may be able to be broken down into a smaller and simpler subsystem. The census can be considered a subsystem of the Australian Bureau of Statistics system [11]. The Australian Bureau of Statistics system provides

key statistics for a range of social, environmental, population, and economic issues. So the census is a subsystem of the Australian Bureau of Statistics because the census role is to calculate the population and household statistics [11]. These statistics calculate the output of the census system as well as the input of the Australian Bureau of Statistics system [11]. Therefore, we can describe the census as a tightly coupled system. The Australian Bureau of Statistic role is to provide a wide range of statistics to assist in making decisions like infrastructure planning [11]. Therefore, we can describe the Australian Bureau of Statistics as a subsystem for other systems.

2c) An information system has many different components and features. The census has an input, transformation, output, boundary, and environment. The input is the stage where data and materials are going into the system. The data about household and population, that is inputted in the census system, is in the form of a paper form or online form [12]. The data collected from the forms contains information about households and populations [9]. This data is then part of the transformation stage where it is coded, collated and organised in appropriate locations [13]. Finally, the coded and collated data is then part of the output stage, where it is sent to the Australian Bureau of Statistics teams [13].

2d) The environment of a system is essentially what is needed to do the process, and what influences the system. For the census, the environment could be the households as the households provide the data needed to be processed [13]. The boundary of an environment is where the process happens. The boundary for the census is the processing system where the data from the forms is compiled and collated [13].

2e) The type of e-commerce the census uses would be e-government. This type of e-commerce aims to “deliver information and public services to citizens.” The census information data will be collated and given to the public, making the census an e-government. The e-government aims to inform the public to help with decision making, which is essentially what the census aims to do also.

3a) There are four types of classifications of a problem when using Ackoffs classification- a puzzle, a problem, mess and wicked mess. The transformation for the future initiative can encounter all four of these problems.

The problem of deciding how much to divide the 250 million among transforming the infrastructure, system, and processes can be considered a puzzle. Firstly, the solution is, in fact, unambiguous because the solutions will determine the exact allocation cost of the 250 million to each part of the transformation [38]. Secondly, the problem is easily defined; the problem can be defined exactly as how much money exactly will each transformation part receive? Thirdly, there is only one possible solution; only 250 million can be allocated among the transformation components.

An example of a problem that may be encountered by the “Transformation for the future” initiative is determining the method of data collection [14]. There is a vast range of solutions for the method of data collection; the methods may include- online surveys, postal surveys, face to face surveys and even telephone surveys [15]. Also, the method of data collection depends on factors such as- whether the organisation or person has the internet/ a telephone, or whether the Australian Bureau of statistics has enough workers to perform face to face data collection.

Figuring out who to deliver the statistics to can be considered a mess. The solutions of this mess are constantly changing. For example, the government may want statistics normally released to the public to be disclosed [16]. Also, there may be an altercation between stakeholders on who gets to view the statistics.

A wicked problem that may arise is deciding which technologies should be adopted [17]. This problem's many characteristics support the claim of the problem being a wicked problem. The word “technologies” is a broad term defined as any “machinery and devices developed from scientific knowledge.” So since there are infinite numbers of technologies, determining the best technologies to adopt is close to impossible [18, 19]. Another reason supporting the claim that the problem is a wicked problem is that there is no stopping rule since there is an infinite amount of technologies [19]. Also, everyone will have their own mindset on which technology is the best and should be adopted, therefore if a solution to the problem of which technologies to adopt were to arise, many people would need to change their mindset [19].

3bi) There are many features that I would like the hardware/software for the “Transformation for the future” initiative to possess. The first feature is making sure there is a high level of data security. Making sure the data is secure is vital because if the data were to “leak” the Australian Bureau of Statistics would face major penalties such as large fines or even criminal prosecutions for the Census and Statistics Act [20]. The second feature the hardware/software must possess is the ability to deliver the statistics faster. The faster the delivery, the faster organisations can use the data for decision making. Another feature is making sure that it is user-friendly, this will cause workers to fully maximise the capabilities of the new system. The fourth feature is making sure that the memory is large enough to store all the data required; the economy is changing dynamically and our society is changing. The need to store more data is present, and therefore having enough storage memory is vital [21]. The final feature that should be possessed by the hardware/software is the effective use of data. This feature will provide new insights, resulting in more accurate decision making by organisations using the data. [21].

3bii) Multi Matrix:

*So the lower the number = the greater importance the feature has for the environment

*I've defined the following environments: ABS Internal Operations, Industry operations, and footprint based on the amount of organisations that each environment must interact/deal with. The ABS internal operations must interact with the most organisations. The footprint environment must interact with the second most organisations, while the industry partnership environment requires the interaction of only a few organisations.

I've assumed that the more organisations that an environment interacts with, the more data that will be transferred.

	ABS Internal Operations	Industry Partnership	Footprint
Data Security	1	3	2
Speed of delivery of statistics	3	1	2
User-friendliness	1	3	2
Storage capacity	1	3	2
Effective use of data	2	3	1

3biii) Weighted Multi Matrix Grid

	ABS Internal Operations	Industry Partnership	Footprint
Data Security (30)	30	90	60
Speed of delivery of statistics (20)	60	20	40
User-friendliness (10)	10	30	20
Storage capacity (20)	20	60	40

Effective use of data (20)	40	60	20
	160	260	180

*So the lower the number = the greater importance the feature has to the environment

3c) The best environment for the "transforming for the future" is the ABS Internal operations environment as it has the lowest overall score. I've weighted the data security feature of the largest compared to the other four features. If data security was poor, the financial repercussions would be huge. The people who would normally purchase the data would most likely have second thoughts and some profits made would be used to pay out the fine for breaking the law [23]. Therefore, the high level of data security for the Australian Internal Operations environment gives it a slight competitive edge over the other two environments. Another important feature, which consolidates the claim of the ABS Internal Operations as being the best environment, is the storage capacity. Out of the three environments, the ABS has the most storage capacity since the ABS hardware is designed to hold data from numerous organisations [6]. The Industry partnership environment hardware would hold data from only a few organisations [22]. Finally, the final feature that further reinforces the ABS environment as the most suitable environment is the user-friendliness feature. The ABS environment is designed to interact with a lot of different organisations [6]. So in order for this environment to even function well, the user-friendliness would most likely have to be great.

Part 2:

Introduction:

The upcoming "transformation to the future initiative" is a $250-million-dollar investment which aims to upgrade the Australian Bureau of Statistics agency to meet the information needs of today's changing society and dynamic economy. The investment plans to provide an overhaul of the infrastructure, systems, and processes necessary to produce official statistics for the Australian Bureau of Statistics. Since this is a multi-million-dollar investment, I have taken it upon myself to provide some details on the information systems vital to the success of the transformed Australian Bureau of Statistics agency.

This report provides a recommendation and outline for the implementation of vital information systems for the transformed Australian Bureau of Statistics agency. The following report will contain 3 main sections, a conclusion, a bibliography and an appendix. The first section will describe the information systems needed. The second section will provide the best strategies to acquire these

vital information systems. The third section will describe the department that will manage these vital systems, while the appendix will outline the code of professional practice for the department.

Section 1:

Several Information systems could be implemented in the Transforming the Future initiative. The first type of system that could be used is a transaction processing system, specifically a data access system [32]. The ABS' role is the provide statistics, and in order to be able to do this, data is needed. The Transaction processing system role in the ABS would be to collect and store data about transactions. The data that may be collected is information about the organisation, household, and business, all of which are needed by the Australian Bureau of Statistics. The data of the transactions would be kept in a database; which would mean that accessing and using it to make reports would be easier [24]. The second information system that could be implemented is a manager information system [24]. This system will use the data collected from the transaction processing system and write a report periodically. The information (such as household address and wealth) collected from the transaction processing system of ABS can organised periodically to help explain structured problems that the Australian Bureau of Statistics may face. An Example of such a problem may be "what is the average wealth of different suburbs?" The third information system used is the decision support system. This system aims to combine the data gathered from organisations and households with external data such as past context to help with decision making [24]. Being able to add some external data to your raw internal data helps explain the reasoning behind the statistics, thus making the statistics more reliable and more informative.

The first component of a dashboard that would improve the efficiency of operating the Australian Bureau of Statistics is the revenue of different organisations and sectors [28]. The revenue of an organisation and an organisational sector is one of the most important statistics, as this statistic can help an organisation decide whether to open another branch, close their organisation, or even assist in prediction of future growth [29]. Therefore, the addition of a dashboard makes the ABS more efficient, since an organisation would not be required to skim through all the financial reports to find revenue. Another component of the dashboard that would make the role of the Australian Bureau of Statistics more efficient is a customer satisfaction rating [28]. This component gives an organisation a general consensus as to whether their organisation is succeeding or failing [30]. Having this knowledge allows an organisation to take action if needed. The third component of the dashboard that should be added is a comparison component [31]. This allows organisations to easily compare statistics with similar organisations, which in turn allows for the organisations to discover if they are outperforming their competition.

Social media presence is when an organisation takes advantage of social media and utilises it in various ways [25]. Having a social media presence for the Australian Bureau of Statistics can be of benefit but can be simultaneously detrimental. The benefit of using social media for the Australian Bureau of Statistics is that it engages with the users and feedback can also be left, which can help

improve the system [26]. Also having a social media presence will raise awareness and thus help many more organisations make well-informed decisions [26]. On the other hand, if the Australian Bureau of statistics allows for open collaboration with social media users then it would be harmful. The reason is that when you open up collaborations it allows most everyone to have a say, and therefore the chance of incorrect statistics being provided would increase [26, 27] thus making the "most trusted" statistical agency less reliable and trusted.

Section 2:

One strategy that could acquire a transaction processing system such as a data access system for the Australian Bureau of Statistics is via custom developing your own information system. Custom developing aims to produce a system best suited for the organisations. The different ways of custom developing an information system include - waterfall, structured system analysis and design methods, O-O development, agile development and finally end-of-user development. How the information is custom developed will ultimately depend on the priorities and the type of system in mind for the development team. Overall, custom developing information system allows for the production of the best-suited information system and also allows for the system to adapt to future changes [33]. Another strategy that can be used is to acquire the Australian Bureau of Statistics' data access transaction processing system is by procuring it. This method of attaining the information system is where a part or whole of an information system is purchased outside the organisation. Procuring your own prewritten information system is suitable for small business as it is often cheaper [33]. The third strategy to acquire the transaction processing system is via customising a prewritten information system. This strategy requires the purchase of the whole or part of the information system outside the organisation and then customising it to suit your needs. This strategy is perfect for organisations that wish to have a decent system at an affordable price.

Evaluation matrix for the two strategies:

		Custom Developing Information system	Custom Developing Information system	Customising Pre-written Information System	Customising Pre-written Information System
Criteria	Weight	Rating	Score	Rating	Score
Customisability of Information system	40%	1	40	2	80
Technical proficiency to make information system	10%	2	20	1	10
Time to make this system	20%	2	40	1	20
Cost	30%	2	60	1	30
Total	100%		160		140

*Note: A lower number rating means the more the feature is focused/important

*Note: A lower total (not %) means the better overall strategy.

The two strategies, custom developing an information system and purchasing a prewritten information system, can both adequately acquire an information system for the Australian Bureau of Statistics. Both the strategies can also be ranked according to their suitability. The strategy recommended to be used is to acquire a particular information system for the Australian Bureau of Statistics via customising a pre-written information system. This strategy total, 140, is less than custom developing an information system, 160, meaning that customising a pre-written information system is better for the ABS system. The % cost weighing is the second most important feature due to Australian Bureau of Statistics having a strict budget [37]. Most of the money the Australian Bureau of Statistics has was given to them by the Australian Government. So if the Australian Bureau of Statistics were to lose lots of money, it is not guaranteed that the government will give them any more [37]. Therefore, being frugal with their government funding is vital. The strategy of customising prewritten information tends to cost less, which helps reinforce my recommendation of this system being the better out of the two [38]. Another reason my recommendation is valid is that custom developing your own information system takes longer to complete than just customizing a prewritten information system [41]. When an organisation purchases a prewritten information system, a large majority of the system would have already been built and therefore only minor modifications would need to be made [41]. The Australian Bureau of Statistics aims to "deliver" statistics efficiently, and one way to fulfill this aim is by using a customisable prewritten information system [40].

Section 3:

One responsibility that the IS department may provide is aid in protecting data and infrastructure for the Australian Bureau of Statistics system. The Australian Bureau of Statistics produces its statistics based on raw data; the data used should be protected so it can't be illegally obtained or modified. Therefore, the ABS IS department can act as a solution to this problem [35]. What this ABS Information system department will do is it will identify threats before they arise and then implement strategies to combat these threats [35]. Another responsibility of the IS department for the ABS is the planning for IT infrastructure and IS systems. Before a new system can be implemented in the Australian Bureau of Statistics, the IS department will make a plan with the infrastructures needed in the system and particular components required in the system. This plan provides a rough outline of the system and makes sure that the system is within budget. The third responsibility of the IS department is to develop and adapt an IT and IS structure. This means that the It department for the Australian Bureau of Statistics can create infrastructures needed by an organisation.

One of the job profiles which helps in protecting data and infrastructure is a system analyst. The system analyst "researches problems and plans solutions [32]" so the system can identify the

vulnerability of the data and try to plan to make the data more secure. A job profile which can help with the planning for the system is that of an ICT consultant. This job aims to work with clients and advises them on how to overcome problems and meet business objectives with an information system [33]. They can also recommend the resources needed and the time necessary to compete the system [33]. The third job profile that can fulfill the IS responsibility of adapting and developing an IT structure is a system architect. One of the responsibilities of this job is that it entails the "planning … and implementation … of ICT systems [36]."

Conclusion:

This report has provided information on how to successfully implement the vital information systems for the transformed Australian Bureau of Statistics agency.

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Appendix:

The code of professional practice applies to Australian Bureau of Statistics IS department. The occupations within the IS department that must comply with and uphold the code of professional practice are the system analyst, ICT consultant, and system architect. The following values underpin the codes of professional practice: security, privacy, and camaraderie.

Security:

The IS department must keep information from the census, surveys, and IS department secure.

This value will be upheld by:

- Ensuring the data is stored in secure hardware or cloud
- Rejecting the thought of storing the data in external hardware
- Making sure the software used to modify the data is up-to-date and from a trusted organisation
- Reporting incidents where information may have been compromised to higher management
- Keeping up to date with the latest news regarding possible technological vulnerabilities

Privacy:

The IS department must make keep the information from the census, surveys, and the department's discourse private from anyone not in the IS department.

This value can be upheld by the IS department by:

- Keeping the information to one's self
- Only revealing the information to your co-workers if truly necessary
- Discussing with other members of the department what information should be kept within the department
- Reporting any incidents where important information may have been accidentally leaked.
- Implementing penalties as a deterrent for leaking information.

Camaraderie:

The IS department can abide by this value through:

- Respecting each other equally
- Respecting each other's professional opinion
- Encouraging communication between workers
- Sharing the workload equally
- Following the code of professional practice