IS ENTERPRISE ARCHITECTURE MANAGEMENT SYSTEM (EAMS) IN TRON STORAGE SUCCESSFUL IN IMPROVING THE IT SERVICE LIFECYCLE?

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Abstrak (Bahasa Malaysia)

Kes kajian ini adalah bertujuan untuk menyelidik masalah yang dihadapi oleh kumpulan Enterprise Architecture (EA) yang bertanggungjawab dalam mengimplementasi sistem penunjung keputusan dalam organisasi Tron. Sistem penunjung keputusan ini adalah suatu alat perisian Enterprise Architecture Management System (EAMS) yang merupakan suatu produk komersial yang mahal. Ia digunakan oleh organisasi besar untuk menyatukan applikasi teknologi informasi dengan matlamat perniagaan. Kejayaan implementasi membolehkan organisasi mencapai ketangkasan dalam membuat keputusan perniagaan yang sentiasa berubah matlamat mengikut trend semasa. Faktor-factor kejayaan implementasi perisian ini adalah sukar untuk dilihat dengan mata kasar dan pengurusan atasan mula bertanyakan bukti-bukti kejayaan yang di capai setelah setahun EAMS diaktifkan dalam syarikat. Kumpulan EA bukan sahaja menghadapi masalah teknikal dalam implementasi, malah masalah pengurusan seperti sokongan penguna ketika memperkenalkan EAMS kepada penguna-penguna dalam syarikat. Kes ini menganalisis punca-punca yang boleh menyebabkan kegagalan EAMS dan mencadangkan strategi untuk memulihkan prestasi alat EAMS di Tron. Kaedah analisis yang digunakan dalam kes kajian ini termasuklah analisis Fishbone, 5 Whys dan carta Pareto. Hasil kes kajian merupakan 5 cadangan utama yang distrategikan dalam 4 pelan implementasi. 3 daripada 4 pelan yang dicadangkan kini diimplementasikan oleh kumplan EA di Tron.

Abstract (English)

This case study is a research to identify problems faced by Enterprise Architecture (EA) Team in implementing decision making tool in company and challenges faced in bringing to tool to maturity. The tool implemented by EA Team is Enterprise Architecture Management System (EAMS) which is a commercial product to help huge enterprise align their IT Applications with their business goals. Successful implementation of the tool will enable the organization to achieve agility in the changing business requirements and make fast accurate decision. The success factor of the tool is very intangible and organization do not see fast effect after purchasing the tool. The issue faced in by the team is more than technical issue as they are being challenged by management issues while introducing the tool to users. This case study will help EA team to analyze the root cause of the poor tool performance and suggest the strategy for performance improvement. The analysis method applied in analysis includes Fishbone Analysis, 5 Whys and Pareto Chart analysis. 5 Recommendations prepared in 4 Action plan has been proposed to the EA team for implementation. Currently, 3 out of 4 of the action plan has been adopted in Tron.

Executive Summary

Tron Storage is a flash manufacturing company that has just started to implement an expensive enterprise decision support tool. Successful implementation of the tool will enable the organization to achieve agility in the changing business requirements and make fast accurate decisions. The success and failure of the tool is very intangible and hard to see until it is too late. The top management of Tron started to questions the success of the tool in Tron after 1.5 year going live.

This case study is a research to identify problems faced by Enterprise Architecture (EA) Team in implementing decision support tool in Tron and challenges faced in bringing the tool to its maturity. The tool implemented by EA Team is Enterprise Architecture Management System (EAMS) which is a commercial product to help huge enterprise align their IT Applications with their business goals. Since the tool turned live, the EA Team has been struggling with issues as if they are "fix a plane while it is flying". There were many hiccups arise from management, data quality, process and the tool itself.

The team was almost drown in chaos and firefighting to prevent the tool from failure. EA Team started to investigate the list of issues faced with the tool by reviewing the list of issues stated in the team's weekly meeting. EA Team has been holding a weekly meeting specifically for the EAMS tool implementation since April 2013 and issue were captured every week in a spreadsheet. The issues faced by the team are more than just technical

issues as they were being challenged by management issues while introducing the tool to end users.

Case study analysis applied includes Fishbone Analysis, 5 Whys and Pareto Chart analysis. Using the case study methodology, list of issues from the weekly meeting were categorized in fishbone diagrams. 5 Whys analysis were applied to analyze the root cause of the poor tool performance from interviews and document support. Each root cause are linked with their specific recurrence prevention in the 5 Why analysis. Finally, the recurrence prevention are used to formulate the recommendations to strategize for performance improvement. Action plan for each recommendations were compiled into sequence based on the priority of the issues. The original sequence of implementation in real practice is pointed out and the rightful sequence is being proposed to the EA Team.

Recommendations and action plan proposed in this case study has been shared with EA Team management Michelle Lanner and John Lambert. 5 recommendations includes (1) Document Self-Service Guidelines, (2) Effective Governance, (3) User Accountability, (4) Obtain Management Support and (5) Create Enterprise Architecture Awareness. All 5 recommendations are strategized into 4 action plans which are (1) User Guide Portal and Documentation, (2) Create Portfolio Management Community, (3) Define Metrics and (4) Create end to end Workflow. 3 out of 4 of the action plan has been taken into implementation.

1.0 Introduction

This chapter provide the case introduction and objective of the case study on Tron IT department. It all begin when Tron storage started the Enterprise Architecture (EA) Team in the IT department. There are various expectation on the team to help the Tron with the IT strategic planning. EA Team faced a lot of challenges in implementing the Enterprise Architecture Management System (EAMS) tool. The research objective and research questions are designed to identify the issues and problems faced in implementing the tool successfully. Finally, this chapter list out all the issues faced by EA Team in perfecting the IT strategic planning for Tron.

Is Enterprise Architecture Management System (EAMS) in Tron Storage successful in improving the IT Service Life Cycle?

Jane Ha joined Tron Storage in March 2013 just after the team purchased the EAMS Tool. Unfortunately, the most experience architect who was in charge of the EAMS tool implementation left the team due to attractive retirement package in April 2013. EA team was in lost due to the no project lead to start up the implementation. Quickly, the implementation tasks was then distributed to all the EA team members. Kent Langdon who is the information architect has volunteered to take up the administration of the tool, while John Lambert was put in charge of the application architecture. Jane Ha was involved in helping Kent Langdon and John Lambert. Jack Howard, a senior architect is in charge of technology standard, governance and reporting.

The team went for training offered by the vendor in late April after the tool was installed in Tron's environment. The team discovered the tool came with many defects although it was listed as the best tool in the market which they have carefully evaluated prior to purchase. On top of that, the tool also came with "steep learning curve" that all architects agreed on. It was not easy to get things done with the tool. There were unhappy moments where architects had to file many complains to the vendor for the disappointment with the features promised by the tool. The team member were all frustrated with the tool.

In August 2014, the team finally got the tool working with a small sample of data to show the tool's capability to the CIO and top executives. Although the demo was successful to proof the value of the tool to the company, there were many input collected from the top management on the expectation on the tool. One of them is "When will the tool be ready to replace the old practice?" Since then, the team has been working very hard to bring the tool to live for enterprise wide. The complexity of the tool as well as challenges from the management makes it hard for the team to see their success. It looked like it is a long way before the organization can start to enjoy the benefit of the tool in improving their IT Service Lifecycle for Tron.

The team was struggling to collect enterprise information and input all the required information into the tool. A lot of times things were being fix along the way when they stumble across issues. John Lambert and Kent Langdon both agreed that the project is like "a plane flying in the sky and we are trying to fix it before it lands"

The team started to question the tool's maturity and tried to reevaluate the tool's progress towards maturity to make sure the team is on the right track. Amidst the problems faced by the tool, EA team wanted to regain their focus to prevent the project from becoming a failure.

1.1 Background of the case study

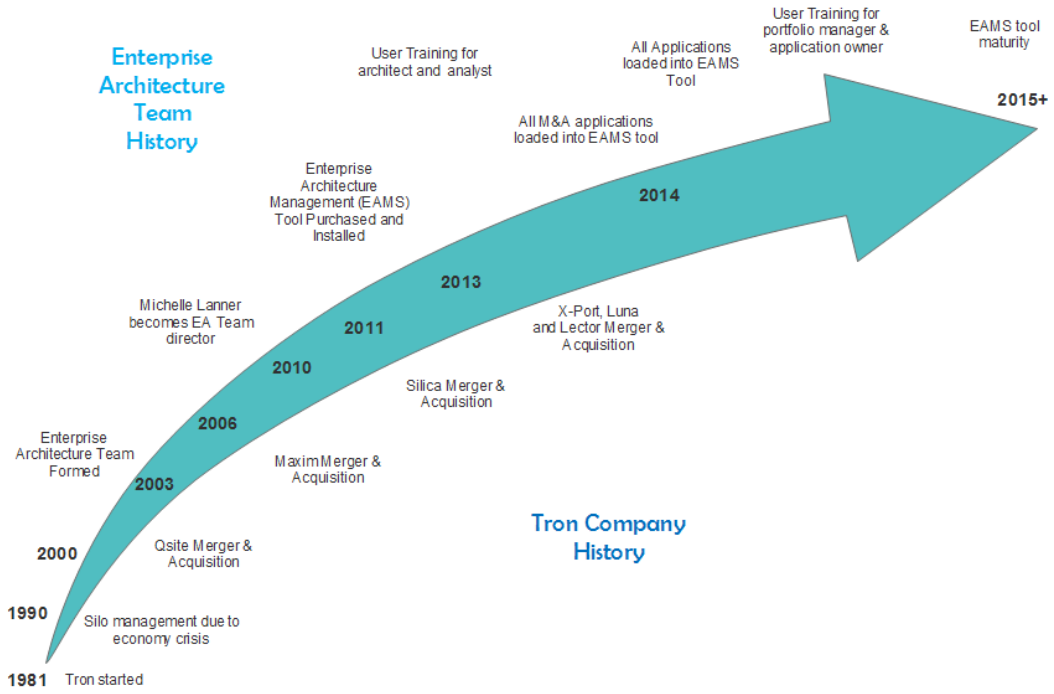

Diagram 1.1: Enterprise Architecture Team History in Tron

In year 2003, an Enterprise Architecture team was formed to help the organization align between business strategy and IT. EA team is responsible to give advice to IT stakeholder in IT strategic planning. The performance of the EA team is determined by the maturity scoring showed in ***Figure 1.1*** and it has been tracked from 2003 to 2011. Poor Architectural Plan and Architecture Development are two main reasons for the organization to invest in EAMS tool. Without the tool, EA

Team was not able to help the organization developed its IT architecture and IT portfolio planning

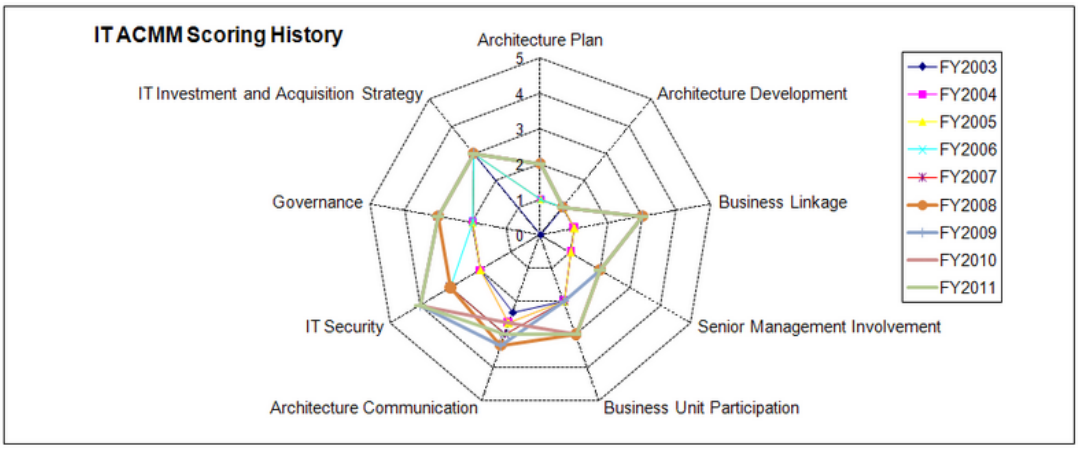

Figure 1.1: EA Team Maturity Metrics from 2003 to 2011.

(Source: Internal IT Architecture Site, 2011)

In year 2013, the company finally invested in an Enterprise Architecture Management Tool to overcome the shortages in Architecture Plan and Architecture Development as reflected in ***Figure 1.1***. The IT CIO, Charles Wayne sponsored the investment in the EAMS tool because he wanted to help the IT department to **reduce the cost and increase efficiency while aligned with Tron organization business goals**. Charles knows Tron IT needs to be agile and EAMS tool can give the IT department the agility to be flexible in M&A and adapt to changing business goals quickly.

John Lambert is the application architect responsible for delivering architectural development in the EAMS tool. During the initial training on EAMS tool, John foreseen centralizing all the applications into a single repository has many

challenges as it involved agreement from all IT stakeholders. Stakeholder has been managing their own portfolio separately since the economy crisis in late 90s shown in ***Diagram 1.1.***

Every repository currently have different standards of data about the applications and it is his top priority to ensure the data quality loaded into the system is close to accurate. User resistance towards change is common in Tron Storage and user education as well as governance process needs to come into place for the project to be successful. John joined Tron Storage in the late 90s. He remembered pointing out the issues of multiple repository of applications to the CIO, Martin Bakerz. Every time the issue was brought to management, new repository was created trying to solve the problem. However, the maintenance of the data stored has no follow up after the heated discussion was over.

1.2 Problem Statement

Management is unhappy that the tool is not ready after 1.5 years since purchased. EA team has been questioned on why there were no significant results from the tool. EA team investigate on what causes the tool to underperform by studying the ideal situation and compare with the current situations. Thus, identify the gaps for the team to close.

1.2.1 Ideal Situation

An **enterprise architecture** (EA) is a conceptual blueprint that **defines** the structure and operation of an organization. The main purpose of having an **enterprise architecture** is to determine how an organization can most effectively achieve its current and future objectives. EAMS tool is an IT Strategic Planning tool to track all the IT operations running in the organization and to identify improve the IT operation as well as plan for the future of their IT blueprint.

Full view of enterprise architecture will allow Tron to do a top-down decision quickly. The tool align business goal to IT operation by linking them in the single repository. ***Diagram 1.2*** shows the tools' expected deliverables for Tron IT strategic planning. The EAMS tool ideally should help the organization make decision based on data in the repository. This means, the data to derive the decision needs to be **accurate, timely and complete** to generate a reliable decision. The decision have impact on **cost and efficiency** of the IT department to support Tron business activities. Analysis on the impact of a decision should be very simple for the top management with the help of this tool.

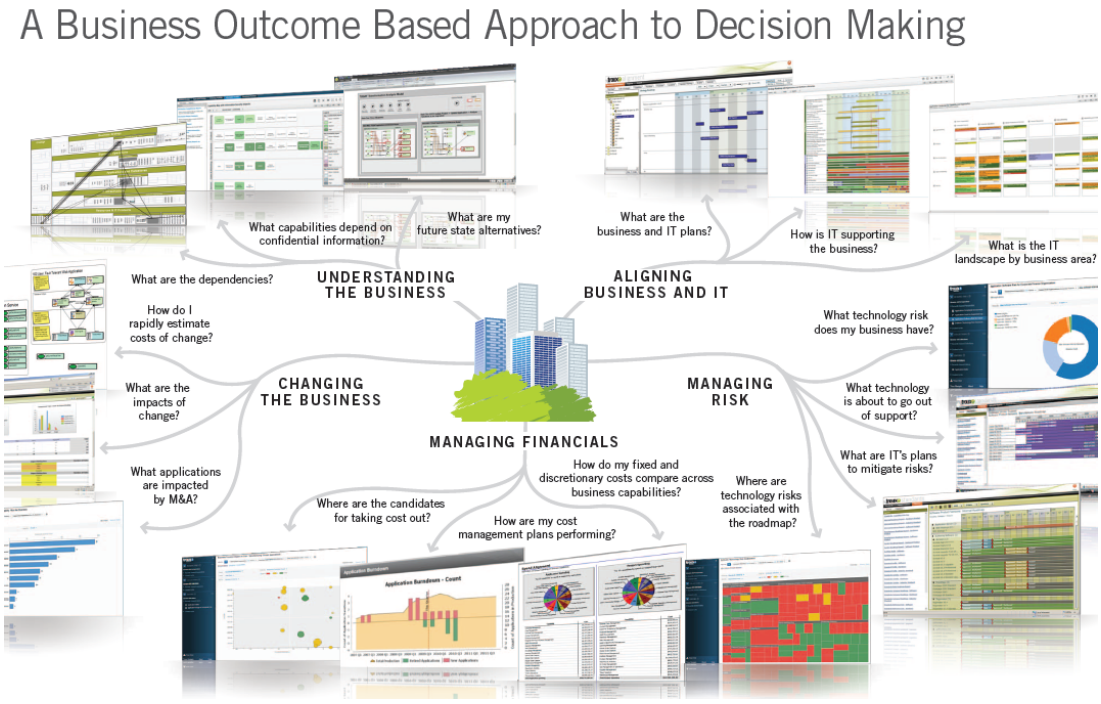

Diagram 1.2: EAMS tool deliverables (Source: EAMS Tool MindMap Brochures, 2013)

1.2.2 Current Situation

After implementing EAMS tool for 1.5 years, the tool has yet to achieve the results for the ideal practice. It has not fully capture Tron's operation blueprint and still Tron does not have the complete EA view to aid in decision making. Analysis of a decision still takes a long time due to incomplete and inaccurate information captured on the tool.

EAMS tool has been loaded with Tron Storage IT department offers about 2000 applications or IT services to support the operation of Manufacturing, Finance, Human Resource, Sales, Supply Chain Management, Engineering, etc. However, the data stored in the system remains questionable on its accuracy, timeliness and

completeness. EA Team has problem to obtain full accurate data into the system and maintain the accuracy.

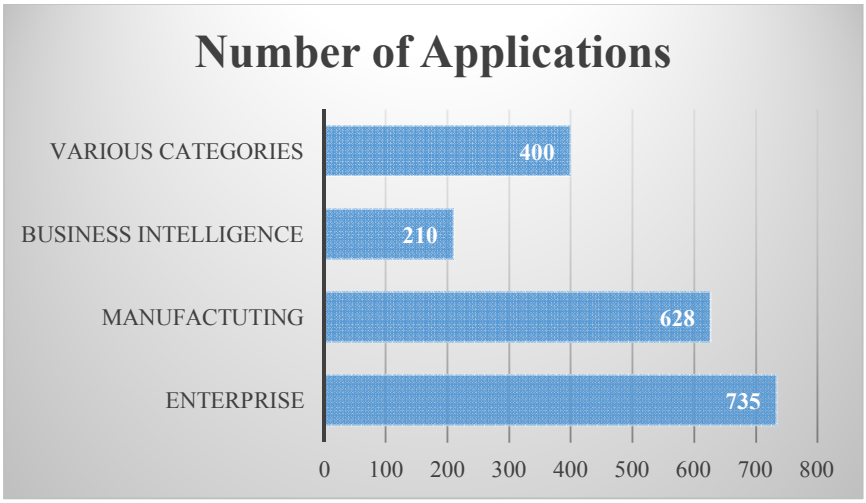

Figure 1.2: Number of applications in Tron Storage (April 2014)

Current number of architectural view completed into the EAMS tool are very minimal compare to 830 architecture diagrams that were updated in Microsoft PowerPoint prior to the tool existence. There were lesser than 100 architecture views in the EAMS tool currently. Poor data quality captured in EAMS tool has limited decision analysis capability for the tool. The tool looks like it need more time to reach the maturity.

1.2.3 Problem to solve

The objective of this tool is to improve the speed of making accurate decisions in the IT Service Lifecycle of Tron. However, tool itself has created a lot of problems for the EA team. EA team has been spending a lot of effort every week to work on issues related to the tool. There has been challenges in governing quality of data input into

the tool, the tool is known to be difficult to use and there are also issue in having the end user to agree on using the system. ***Diagram 1.3*** shows the progress of implementation only around 30% after 1.5 years.

Should this project be considered as a failure now? What are the root causes for the tool's bad performance? What should be the EA team's strategy to regain the tool's performance?

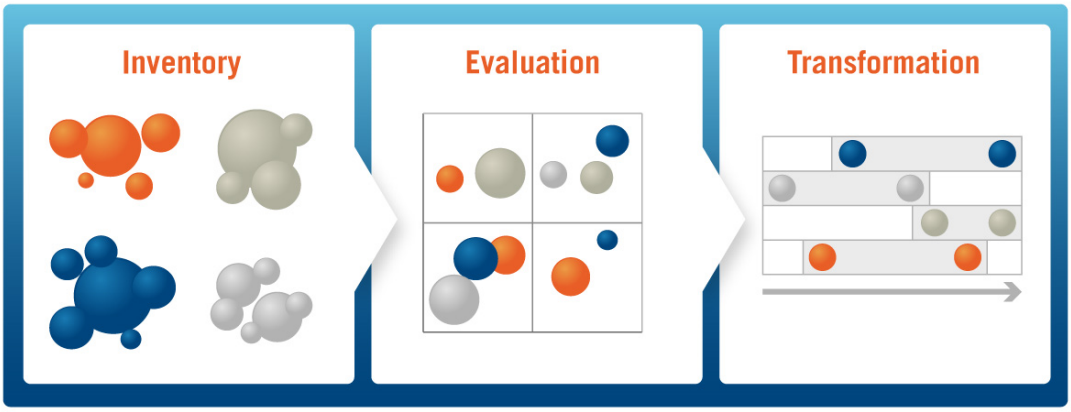

Diagram 1.3: EAMS tool capability consist of inventory, evaluation and transformation.

(Source: EAMS Tool Documents)

After 1.5 years of implementation, the team has only achieved "Inventory" portion of the tool. They have not turned on the "Evaluation" capability and "Transformation" capability of the tool. 100% completion of the implementation allow the company to do transformation on their IT investment by applications. Currently, the progress of the team with the implementation is at 30% which is only "Inventory". The team is considered "behind schedule" as they still have 70% of the implementation not completed causing management to start questioning the deliverables.

1.3 Research Objectives

I. To identify the ideal EAMS tool performance

II. To identify the strategy to achieve tool maturity

III. To identify challenges that can delay tool maturity

IV. To identify causes of poor EAM tool performance currently

V. To find ideas for improvement from users

1.4 Research Questions

(1) What is the ideal state of EAMS Tool 2 years is after released?

(2) What is the strategy for EA team to get the tool towards maturity in Tron?

(3) What are the challenges faced to achieve EAMS tool maturity?

(4) What causes EAMS tool to have poor performance currently? (Apply 5 Whys)

(5) How to improve the tool's performance?

1.5 Case Issues

Everyone in the EA Team has been struggling with the implementation of the tool in Tron environment. ***Figure 1.3*** shows the analysis of effort spent on delivering the tool for April 2014 (1 year after purchased). The data is derived from the issue listed in the EA team's weekly meeting. The issues are summarized into administration, consulting, data loading, documentation, governance, integration and modelling. From the issue listed above, data loading effort and governance of the tool has taken more

than 50% of the team's effort. The case study will focus on getting the strategy for the tool reach its maturity and to redeem its success in Tron.

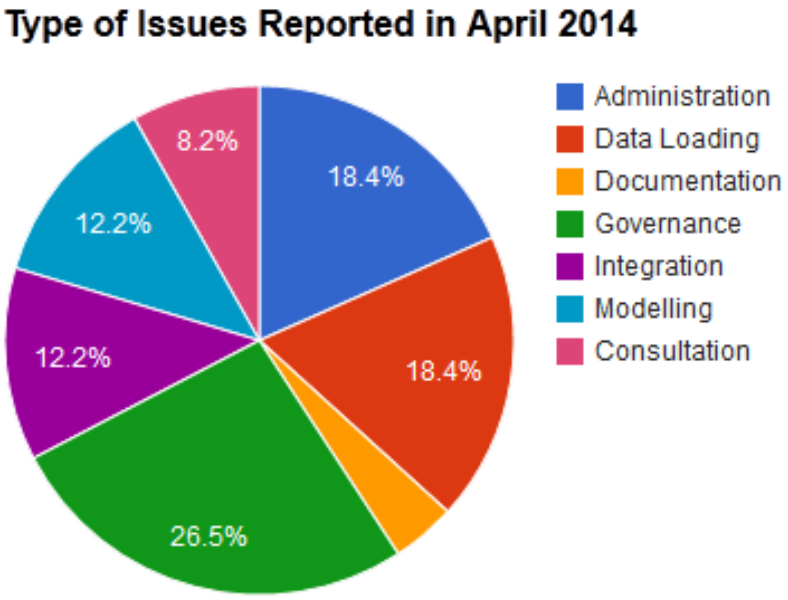

Figure 1.3: Percentage of effort spent by EA Team in EAMS Tool delivery

(Source: EA Weekly Meeting Issues)

Other than the symptomatic issue from the tool, there are other areas from management perspective that EA team need to consider. There are various critics that listed out factors that could cause the implementation of the tool to fail in Tron.

"Insufficient stakeholder understanding and support. This happens when employees outside the EA team do not participate in the EA program, EA content is not used in projects and management questions its value." – Gartner Enterprise Architecture Summit, 2009.

While the EA team try to sustain the operation of the tool in Tron, they faced varies challenges. One of the challenge is user who refuse to join the program due to their executive is not supporting the initiatives. When John Lambert tried to collect the application data from Business Intelligence department, the Portfolio Manager were being uncooperative due to not having the full support from his superior on this project.

"Not Measuring and Not Communicating the Impact: The value of EA is often indirect, so it may not be obvious to everyone in the organization. This then exposes the EA program to risk of failure." – Gartner Enterprise Architecture Summit, 2009.

The value of the EA is taking time to achieve the outcome and this risk the tool being criticize as failure by stakeholder due to its late results. Executives starts to question the success of the tool after 1 year of implementation when they do not see the outcome of the tool that impact on the business.

EA team now has a bigger responsibility to sustain the tool and at the same time deliver the architectural excellence to the organization. A strategy needs to be identified for the team.

2.0 Industry background

In this chapter, we go from global trend to flash manufacturing company trend in EAMS tool application. The trend of IT practice for Information and Communication Technology (ICT) companies using EAMS tools are listed with the objective of using the tool.

2.1 Global IT Management Trend

Strategic IT planning tool such as EAMS has become common for numbers of leading companies globally especially companies that depends on IT as enabler for business activities. Private companies and government bodies have applied the tool for the purpose of agility. Agility for companies indicate the ability to do urgent cost restructuring and business goal changes**.** ***Diagram 2.1*** shows example of companies from different industries such as technology-based, financial services, government, insurance, healthcare, retail, etc, which have implemented the EAMS tool and achieved their business outcome.

Diagram 2.1: List of companies implemented EAMS tool across differenced industries (Source: EAMS Tool Customer List, 2014)

2.2 Flash Manufacturing Industry

Samsung, Toshiba, Micron Tech, SK Hynix and Intel are among the competitor for Tron. One of Tron's competitor Intel has also implemented EAMS tool for strategic capability planning. **"***Intel* IT has transformed our *enterprise architecture* practice into a strategic capability based on a common set of methods and tools." IT@Intel White Paper, May 2011. Similar to Tron, Intel's EA team maturity has also been tracked for a few years from year 2008-2010 as shown in ***Figure 2.1***. The criteria for maturity is slightly different than Tron.

The measure is based on IT-CMF while Tron capture its maturity based on IT-ACMM in ***Figure 1.1.*** Intel has better EA maturity in ***Figure 2.1*** compare to Tron in the areas of Architecture Planning. Architecture Planning for Tron was poor as shown in ***Figure 1.1*** in 2011 because Tron has not invested in any EA Tools due to budget concern.

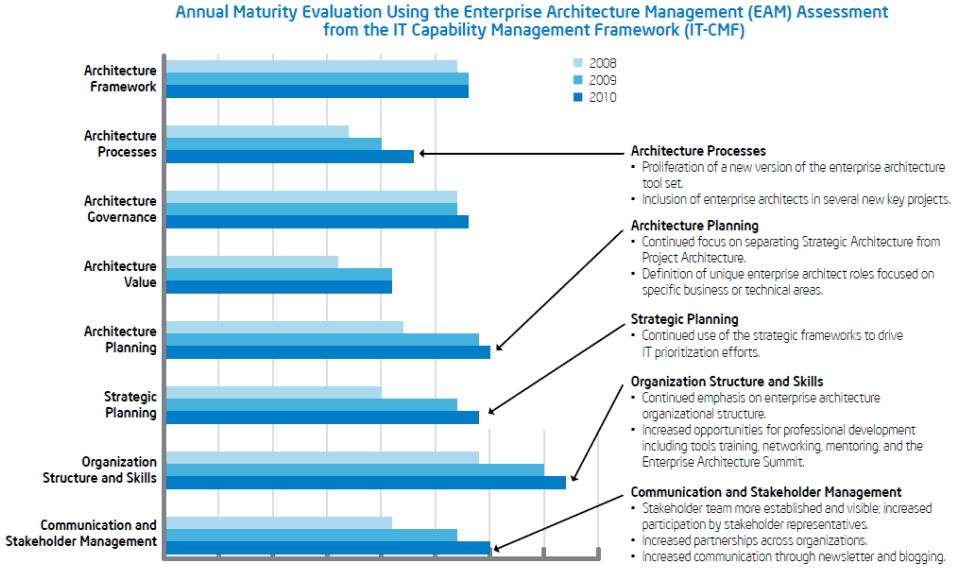

Figure 2.1: Intel EAM maturity tracking from 2008 – 2010

(Source: Barberra, 2011)

Tron CIO, Martin Bakerz has 13 years of experience as CIO for multi-national technology companies and IT departments has always been challenged to improved efficiency and reduce cost. He is counting on this tool to help him manage the IT department better. He is always following the trend from IDC and NASCIO research to help to lead the IT departments towards that goal of future demands.

> **"By 2015,** 3rd Platform requirements will drive 60% of CIOs to use enterprise architecture (EA) as a required IT tool to support continuous change and business innovation, but only 40% will deploy EA effectively.
> **By 2016,** 80% of organizations' IT budgets will be based on providing service integration for a broad portfolio of internally and external sourced IT and business services.
> **By 2017,** the transfer of 3rd Platform investments from IT to line-of-business budgets will require 60% of CIOs to reduce the cost of infrastructure and operations to focus on business innovation and value."
> ***(Source: IDC CIO Summit, June 2014.)***

The 2014 priorities for United State CIOs, which is reflected in voting conducted by NASCIO, is deeply rooted in immediate IT management concerns such as Project and Portfolio management and IT strategic planning. EAMS tool offers the following result to Tron's need if it is deployed by EA effectively in 2015. Martin's idea and expectation on the tool is more towards cost saving by controlling the IT portfolio planning by 2017.

> "Project and Portfolio Management: project management discipline, enterprise portfolio management (EPM), oversight, portfolio review, IT Investment Management (ITIM), training/certification of staff, traceability to mission and strategy, scope management, execution" (***Source: US CIO Priorities in 2014 (2013))***

> "Strategic IT Planning: vision and roadmap for IT, recognition by administration that IT is a strategic capability; integrating and influencing strategic planning and visioning with consideration of future IT innovations; aligning with Governor's policy agenda" ***(Source: US CIO Priorities in 2014 (2013))***

3.0 Company Background

3.1 Tron Storage Company Background

Tron Storage Technology is a US-based company with core business in flash memory manufacturing and it was founded in 1981. Tron storage offers a variety of flash memory to serve different market usage demands. Flash storage manufacturing is a red ocean business. Samsung, Toshiba, Micron Tech, SK Hynix and Intel are the few biggest survivor in the red ocean. Tron is highly competative in the segment of NAND Flash memory and ***Figure 3.1*** shows the list of Tron's competitor in the market.

Worldwide NAND Flash Memory Market Share
(Revenue in Millions of US Dollars)

	Q4-12 Revenue	2012 Total Revenue	2012 Market Share
Samsung Electronics	1,992	7,459	36.9%
Toshiba	1,789	6,222	30.8%
Micron Technology	672	2,746	13.6%
SK Hynix	683	2,295	11.4%
Intel	484	1,432	7.1%
Others (Powerchip & Spansion)	14	57	0.3%
Total	**5,634**	**20,211**	**100.0%**

Source: IHS iSuppli Research, March 2013

Figure 3.1: NAND Flash Memory Market Share among Tron's competitors (Source: IHS iSuppli Research, March 2013)

NAND Flash drive global demand has been forecasted to increase from year 2012 to 2017 as shown ***Figure 3.2***. This is due to global increase of smartphones, solid-state drive and handheld devices as predicted in Nov 2013 shown by ***Figure 3.3***. Tron would acquire their competition and increase their market share in NAND

flash memory segment. They hope by having EAMS tool, they can achieve these two goals with ease by leveraging on the tool to make fast decision.

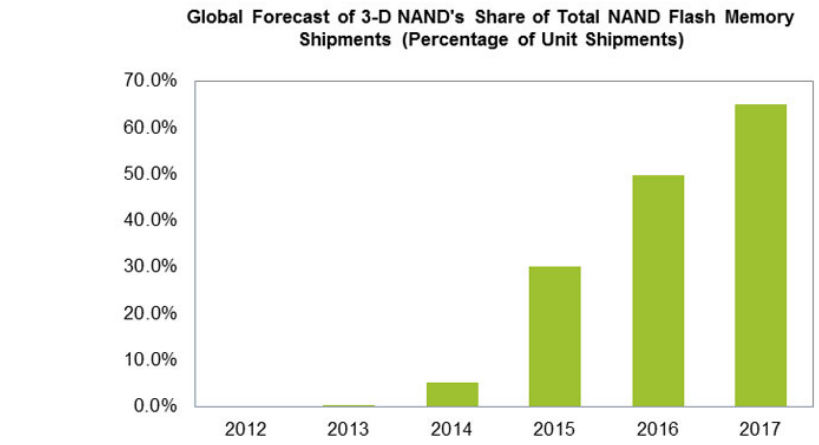

Figure 3.2: Market Demand of NAND Flash Memory

(Source: IHS Group, 2013)

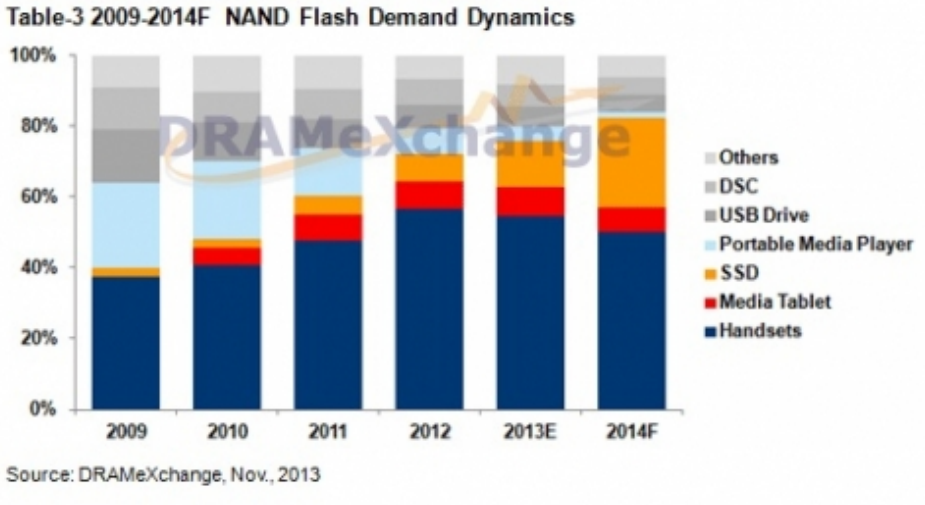

Figure 3.3: NAND Flash Drive Usage

(Source: DRAMeXchange, Nov 2013)

3.2 Tron IT Department Background

To compete with the global flash drive companies, Tron IT department have to stay align with business goals. IT department help to implement sales systems for the sales team and implement factory production system to increase the factory yield. IT department need to align their budget and spending to support different business goals.

In manufacturing operation, most of the factory floor systems depends on Manufacturing IT to help them to setup for operation. When the IT system in factory is down, IT subject matter expert will be consulted and they will troubleshoot and fix the system for the operation to resume. Factory IT has the highest business value and money invested into factory systems are the highest in IT budgets. ***Figure 3.4*** shows the IT spending for Tron in year 2013.

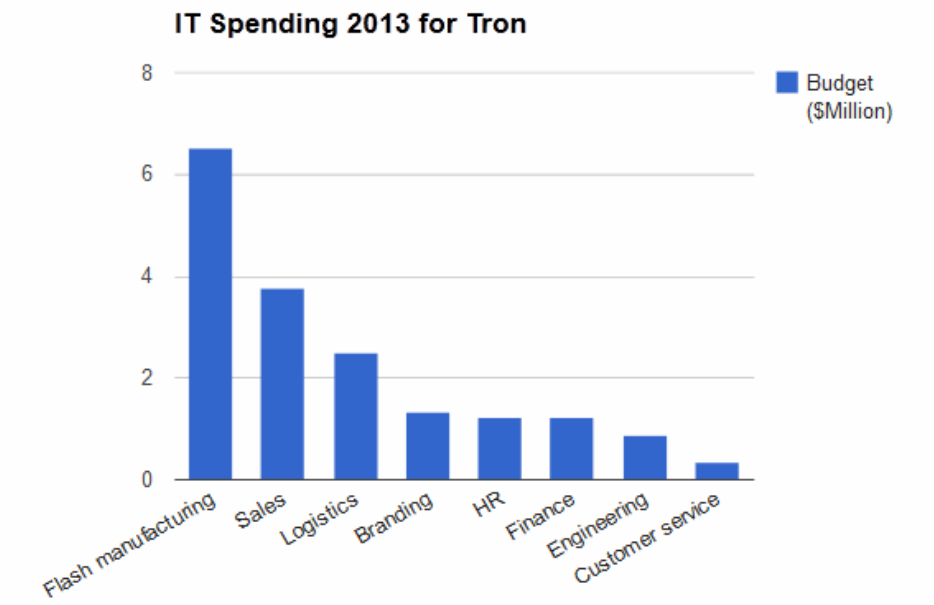

Figure 3.4: IT Spending in 2013 for Tron (Source: Internal Dashboard)

Tron does not have a clear link between the IT spending and the business goals. The current IT Total cost of Ownership is not linked to the organization business goal. With EAMS tool, the executive's vision is to link the business goal to total IT spending. The executive set organization goal in Performance Management System. The Project Team under each executive carry out project and log in their effort spending in another system. The planning and demand management team collect requirements in a manual way. All 3 systems are not linked and not sync with each other and this is why it is hard to link their business goal to their IT Spending. It is important to resolve the integration between the systems in order to make the organization more agile.

Use case of EAMS tool for manufacturing industry is to help the company to manage IT portfolios starting by linking the business goals to all applications that is in the organization. By doing so, the change of business goal can be aligned to IT applications and their portfolio quickly. For example when Tron wants to increase the sales to 20% in 2015, IT budget needs to be align to support sales team to achieve their sales and manufacturing to be able to produce the number of NAND memory to fulfill the sales.

3.3 Tron Storage IT Organization Chart

The CIO reports directly to the Chief Executive Officer (CEO) of the company. Refer to ***Diagram 3.1*** for the reporting structure. Under the CIO, there are 4 IT Vice President in-charge of different areas in Tron IT namely IT Technology,

Manufacturing IT, Business Intelligence and Enterprise Applications. EA Team is parked under IT Technology department and need to work closely with these 3 other IT departments because the EAMS tool help to capture all the applications maintain by the 3 departments.

The end user of the EAMS tool are application owners that reports to the three different VP from three areas of IT.

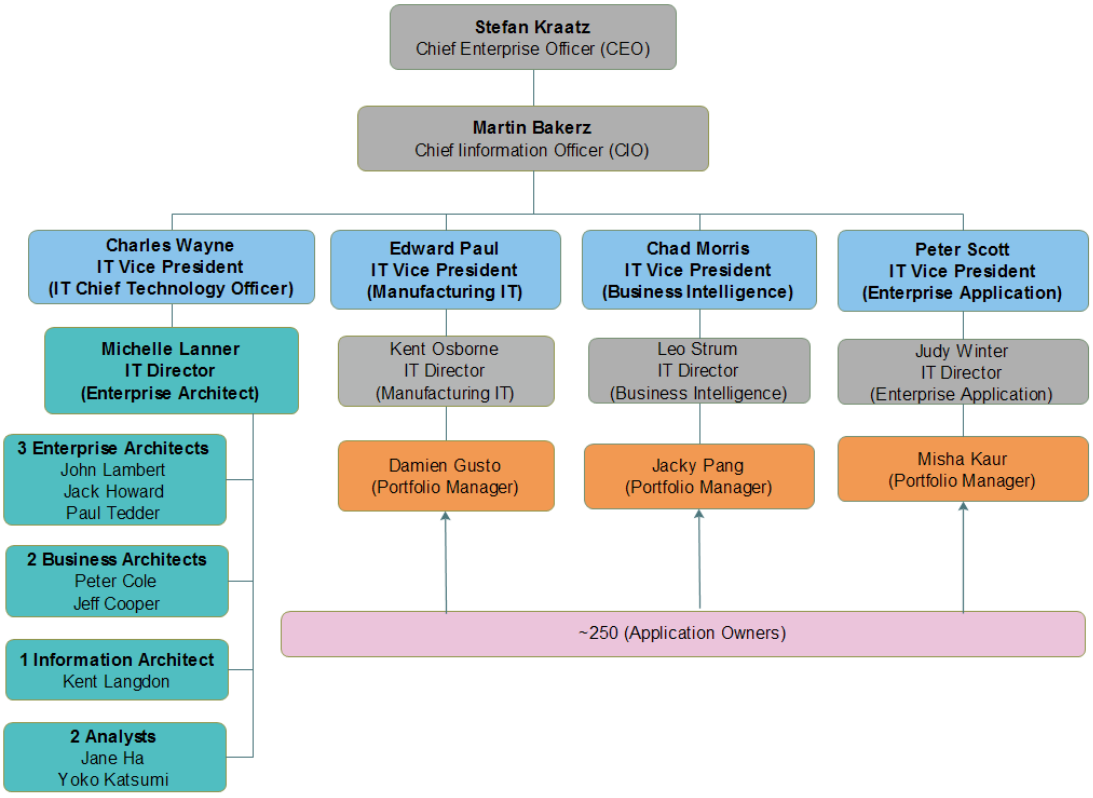

Diagram 3.1: IT Department Organization structure in Tron (Source: Internal Website)

Vision & Mission of Tron Storage IT department

Tron Storage IT Department Vision Statement

Enable the company to execute with Speed and Scale via IT

Tron Storage IT Department Missions Statements

- Build Close Partnership and Work Closely with Business Units
- Continue to support IT development and deployment for business improvements
- Make things simpler for our Customers and Ourselves
- Continue to support Tron Storage M&A
- Continue to support the effort to protect company intellectual property and secure the Enterprise

Stakeholders and decision makers who will be using the system to decide on the IT budgets are Edward Paul, Chad Morris and Peter Scott whom are the IT Vice Presidents of Tron's IT Department. Portfolio Managers such as Damien Gusto, Leo Strum and Misha Kaur will be responsibled to report the portfolios to the executives upon request. The 3 portfolio managers will be depending on the Application owners to update the data into the system as accurate as possible.

Following are the responsibility of each department has different roles:-

i) **Manufacturing IT**

Manufacturing IT department is in charge of all the applications running for **factory operation**. They covers factory floor sensor operation, production line, failure analysis, work in progress, assembly, etc. As a Multi National Company (MNC), Tron has factory all around the world to build different part

of its flash and assembly line in different geographical location. All manufacturing applications are located at different locations and handled by the local manufacturing IT.

ii) Business Intelligence

Business Intelligence is in charge of applications that **provide dynamic reports** for business user to track their performance. For example, Customer Service, Quality Project Management (QPM), rate of return (RR), Compliance tracking, Monitoring, etc.

iii) Enterprise Applications

Enterprise applications department covers all the **applications for operation of various departments other than manufacturing**. Applications ranges from Human Resource (HR), Accounting, Payroll, Sales, Vendor Management, and Enterprise Resource Planning (ERP) to Employee Performance Management.

Generally, there are 2 roles involved in the application management.

1) **Portfolio Manager - Damien Gusto, Jacky Pang and Misha Kaur**

   Portfolio Manager manage the applications in general from a **business perspective**. They need to report the business, technical and risk values for all applications to the executives. They help executive to decide the value of investment for all the applications.

2) **Application Owner – Approximately 250 person**

Application owner are the **business owner or subject matter expert** who also know the application technically. They are involved in the Software Lifecycle development of the application from requirement stage. They knows all the functionality of the application, version number, vendor and its operation.

3.4 EA Team Organization Structure

Enterprise architecture team is led by Michelle Lanner who is an IT Director. She reports to IT CTO, Charles Wayne. As shown on ***Diagram 3.2*****,** EA team consist of 8 members lead by Michelle Lanner. There are 3 enterprise architects, 1 information architect, 2 business architects and 2 research analysts.

EA Team Vision Statement

To seek alignment between business strategy and IT with effective IT Governance.

EA Team Mission Statement:

- Enterprise architecture to enable Tron Storage business outcomes.
- Greater insights through Enterprise Architecture Management System
- Better decision making via IT portfolio and program portfolio management
- Support M&A Activities

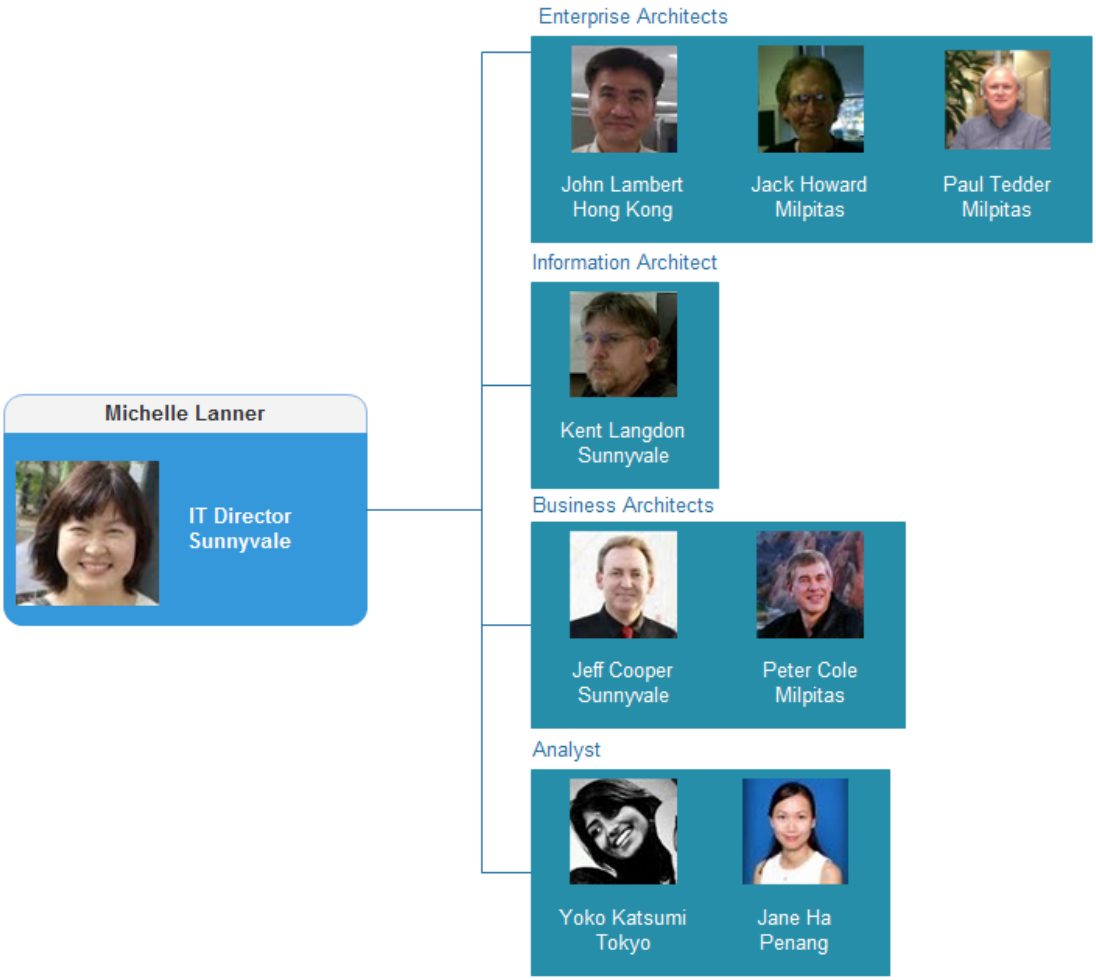

Diagram 3.2: Enterprise Architecture Team Organization Chart (Source: Internal Org Chart)

a. IT Director, Michelle Lanner

Michelle Lanner has been with Tron IT for about 20 years. She started from the manufacturing IT systems where she help the manufacturing IT to create their architecture diagrams. She was elected to be the EA team director in year 2010 to precede the previous director who have left the position. Since then, Michelle has built strong relationship with executives from Manufacturing IT, Business