Evaluation of Governance and Measurement of Maturity Levels System Plastic Injection Company Information Using COBIT 2019 and Luftman Maturity Model

Ferdinandus Andrew Nurtjahjo[1], Bernardinus Harnadi[2], G. Freddy Koeswoyo[3]
[1,2]Department of Information System, Faculty of Computer Science
[1,3]Department of Accounting, Faculty of Economics and Business
Soegijapranata Catholic University, Semarang, Indonesia
[1]18g40002@student.unika.ac.id

Abstract— Organization for managing information technology often doesn't work effective so that result the company's workflow becomes irregular . This research initiates governance system PT Amaryllis information Charisma Brilliant by using measurements level IT maturity based on *the Luftman Maturity Model* and COBIT 2019 *framework* in the Align, Plan, and Organize (APO) domain. measure by method *Luftman maturity model* done by share questionnaire related criteria communication , competence , governance , partnership , space scope & architecture , and expertise in space scope IT maturity in the company . Evaluation of IT governance using the COBIT method is carried out by opening the APO domain in levels management company to assess weakness system information and can provide recommendation related to improvement performance company . Measurement evaluation results level IT maturity shows company on criteria communication , partnerships , and expertise are included in level 4 (*Improved Process*), meanwhile criteria competence , governance and partnerships enter level 3 (*Established Process*) so this research is recommended company to make structural changes organization under the director directly in implementing *service level* and focus agreements to business integration using third parties in making IT strategies. Whereas IT governance evaluation results using COBIT 2019 APO domain that companies in sub domains APO02, APO03, APO04, APO07, APO09, APO13 enter level 4 (*Predictable Process*), while sub domains APO01, APO05, APO06, APO08, APO10, APO11, APO12, and APO14 enter level 5 (*Optimizing Process*). Acquired weaknesses that is Not yet fulfillment committee executive IT related and not done testing IT- based by all employees so this research recommends company to form committee special executive in management related to IT and management testing IT- based by a special team formed by the company.

Keywords— IT governance evaluation , COBIT 2019, APO, measurement level maturity

I. INTRODUCTION

PT Amaryllis Charisma Brilliant is company operating in the field of injection plastic that is packaging food (*food packaging*) and toys children . The company has trusted by many people consumers for approximately 20 years by companies largest in Indonesia. Companies located in the Regency Tegal , Central Java uses various types that are sophisticated in producing packaging food . Various type the machine is also a force separately for companies in developing system information for internal company . But system [1] expected by the company not yet accessible to all divisions due to quite high costs in the development process . This then becomes evaluation material for management in using the system free namely using the system *accurate* [2]

system is in use It can be said that it is quite easy just to carry out the input process, but not all divisions use this system , only various divisions such as production , PPIC, *purchasing* and distribution of goods , so in other words the company must dare to develop system [3] that can reach entire division. So From there, it becomes a concern in auditing governance system information the company as well measure level IT maturity has walk until At the moment. To be able to spin system existing information , the author uses the COBIT 2019 *framework* [4] as an auxiliary work tool in the auditing process system in accordance with company objectives .

The benefits obtained are both for this research and for the company that is expected capable interpret a system that can help companies in designing the governance used to complete problems and also increasing in mastering and running the system . In theory, this research is also capable develop insight and knowledge gained in measuring step IT maturity and turnaround manage system information company .

II. METHOD

This research uses the method *Luftman maturity model* [5] which is useful for measuring level maturity system information company . Following The method used by the *Luftman maturity model* that is :

Table 1 . IT Maturity Levels

Level		Rentang Skala Likert (rata-rata)
Level 1	Initial	1,0 – 1,99
Level 2	Commited	2,0 – 2,99
Level 3	Established	3,0 – 3,99
Level 4	Improved	3,6 – 4,5
Level 5	Optimized	4,5

Based on the table above , maturity level explained from level 1 to level 5 ,below explanation :

Level 1 *(Initial Process)* ; this level indicates that there is no alignment maturity between IT strategy and business strategy in the company.Companies that are at this level are defined as non- existent initiative in and develop IT strategy with business strategy.

Level 2 *(Committed Process)* ; this level is the beginning of changes and developments in aligning IT with business means company has appear will and ideas that can be committed to achieve maturity in aligning IT strategy with business strategy.

Level 3 *(Defined Process)* ; at this maturity level , the company has concentrate to activities carried out in realizing the company's business goals so that they can be aligned between IT strategy and business strategy. However, in practice it is necessary better improvement .

Level 4 *(Process Improvement)* ; at this maturity level , the company has prove that IT concept that has been designed has running effectively so it becomes a benchmark key in the company .

Level 5 *(Optimized Process)* ; at this last level of maturity , the company has reach point Highest in alignment maturity of IT strategy with business strategy. In a sense, the company considered very good at planning all activities and has very well integrated .

To achieve what the company has align IT strategy with the business in a way explain six criteria according to *Luftman* , namely : communication , competence , governance , partnerships , space scope and architecture , expertise

Apart from using *the Luftman maturity model* as a measurement level IT maturity , this research also uses the COBIT method [6] with the Align, Plan, and Organize (APO) domain in *opening* [7] governance system information explainable company including : APO01 (Manage IT Management Framework), APO02 (Manage Strategy), APO03 (Manage Enterprise Architecture), APO04 (Manage Innovation), APO05 (Manage Portfolio), APO06 (Manage Budget and Costs), APO07 (Manage Human Resources), APO08 (Manage Relationships)

APO09 (Manage Service Promises), APO10 (Manage Suppliers), APO11 (Manage Quality), APO12 (Manage Risk), APO13 (Manage Security), APO14 (Manage Data) [8] .

According to the explanation above , the APO domain is solutions to resolve problems related to information technology to achieve company goals . In the *Align, Plan, and Organize* (APO) domain, there are *ability level* [9] as a form of level achievement company performance and strategy :

Level 2; at this level, the company considered has walk effective according to procedures , but it is necessary improvement and monitoring .

Level 3; this level of maturity can be interpreted that company has take the initiative in the integration process with information technology in achieving company goals .

Level 4; at this maturity level , companies that have apply system information [10] own existing limitations determined .

Level 5; at this level, the company has reach superiority high by standards system information and performance company .

III RESULTS AND DISCUSSION

In the research discussed in this study, then it will give results from method *Luftman's maturity model* as a form of level maturity Between IT strategy [11] and business strategy , namely :

Table 1 . Criteria Communication

PERNYATAAN	TOTAL NILAI KEMATANGAN
TI yang digunakan telah sesuai dan mendukung proses operasional perusahaan	4,4
TI sangat berpengaruh terhadap proses operasional perusahaan (mendukung kinerja seluruh bagian yang ada)	4,8
Penyebaran informasi atau sosialisasi terhadap adanya inovasi baru atau perubahan-perubahan yang terjadi melalui mekanisme/prosedur yang telah ditentukan (misal: rapat, email, dll)	4,6
Bagian TI tanggap akan permintaan dan memberikan dukungan terhadap kegiatan operasional (baik kegiatan rutin maupun insidentil)	4,6
Kegiatan *sharing konwledge/information* dilakukan secara *formal sharing* antar semua staff dan pimpinan perusahaan	4,4
Hubungan kerja sama dengan *vendor/supplier* terkontrol dan dilakukan secara rutin dan terus menerus	3,8
TOTAL RATA - RATA	**4,43**

Based on table above can be explained that respond respondents about criteria communication reached level 4 *(Process Improvement)* which means company has own improvement [12] in terms of communicate with subordinate staff

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Table 2. Criteria Competence

PERNYATAAN	TOTAL NILAI KEMATANGAN
Pengukuran kompetensi dari sisi TI dilakukan dengan mengukur efektifitas biaya serta melibatkan peluang-peluang bisnis yang dapat ditimbulkan oleh TI, staf dan rekan bisnis	3,8
Pengukuran kompetensi dari sisi bisnis dilakukan berdasarkan orientasi pada kepentingan level atas sampai dengan bawah	4,2
Pengukuran kompetensi bisnis, rekan bisnis dan TI sudah saling terhubung satu sama lain	3,6
Penerapan *Service Level Agreement* sudah diterapkan secara terintegrasi pada semua unit	3,2
Perbandingan *(benchmarking)* dalam rangka evaluasi terhadap output yang dihasilkan telah dilakukan secara rutin pada semua proses bisnis	4,2
Review/penilaian dan evaluasi secara umum terhadap investasi TI telah dilakukan secara rutin	3,8
Peningkatan/perbaikan proses dan aktifitas belajar mengajar yang kurang optimal berdasarkan hasil evaluasi investasi TI dilakukan dengan baik dan secara rutin	3,8
TOTAL RATA - RATA	**3,80**

Based on table above , can be explained that respond respondents about competence reached level 4 *(Process Improvement)* which means company in owning ability to understand intermediate evaluations alignment of IT strategy with business strategy.

Table 3. Governance Criteria

PERNYATAAN	TOTAL NILAI KEMATANGAN
Perencanaan strategi bisnis pada perusahaan telah terintegrasi dengan baik	3,8
Perencanaan strategi TI dan Sistem Informasi pada perusahaan telah terintegrasi (setiap bagian/unit bisnis) dengan baik	4
Tanggung jawab dan wewenang Bagian TI dalam struktur organisasi berada di bawah Direktur	3,4
Manajer TI memberikan laporan langsung kepada Direktur	3,2
Perusahaan memiliki anggaran tersendiri untuk infrastruktur TI	4,2
Keunggulan *competitive advantage* (keunggulan kompetitif dalam bersaing) merupakan dasar pertimbangan untuk investasi TI	4,4
Steering Committee pada TI dilakukan pada tingkat senior manajer (top manajemen)	4
Prioritas dalam pemilihan proyek ditentukan berdasarkan fungsi TI maupun bisnis	4
TOTAL RATA - RATA	**3,88**

Based on table above , it can be said that companies in implementing governance about IT alignment with business strategy reaches level 4 *(Improved Process)* which means company own progress and have been running in establishing governance

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Table 4. Criteria Partnership

PERNYATAAN	TOTAL NILAI KEMATANGAN
TI menjadi aset penting bagi perusahaan dan bekerja sama dengan bisnis dalam menciptakan nilai *(value)* bagi perusahaan	4,2
Dengan adanya TI, perusahaan lebih cepat beradaptasi dalam menghadapi perubahan	4,4
Resiko kegagalan penerapan TI ditanggung bersama dan adanya penghargaan bagi keberhasilan penerapan TI secara bersama antara manajemen dan bagian TI	3,8
Hubungan manajemen antara bisnis dan TI telah diimplementasikan dan dilakukan peningkatan secara terus menerus	3,8
Bentuk kepercayaan hubungan internal maupun dengan partner bisnis yaitu dengan saling mempercayai satu sama lain	4,4
Direktur menjadi sponsor dalam pengembangan TI perusahaan	4,6
TOTAL RATA - RATA	**4,2**

Based on table above , can be explained that company in dealing with work partners regarding need company has reached level 4 *(Process Improvement)* which means company has capable happen connection optimal cooperation .

Table 5. Scope & Architecture Criteria

PERNYATAAN	TOTAL NILAI KEMATANGAN
Peran TI dalam mendukung proses bisnis perusahaan sebagai *driver/enabler* dalam strategi bisnis perusahaan	4
Perusahaan telah memiliki standar yang terintegrasi dan baku dalam perencanaan dan penerapan TI	4,2
Arsitektur TI/SI yang ada pada perusahaan telah terintegrasi dengan rekan bisnis	3,4
Perlakuan yang diberikan terhadap arsitektur TI/SI sebagai *enabler* yang digunakan untuk merubah pasar	3
TOTAL RATA - RATA	**3,65**

Based on table above , can be explained that company in determining room scope and architecture about IT alignment with company business has reached level 4

(Process Improvement) which means company has plan room scope & architecture that has been well coordinated and running effective .

Table 6. Criteria Skill

PERNYATAAN	TOTAL NILAI KEMATANGAN
Respon terhadap inovasi-inovasi baru ada pada bagian teknologi baik dan cepat	3,8
Dalam menjalankan tugas berdasarkan rapat dan didiskusikan bersama	4,4
Kesiapan dalam menghadapi terjadinya perubahan tinggi dan fokus	4
Kesempatan untuk meningkatkan karir pada semua staf	4
Memberikan pelatihan kepada staf sesuai dengan keahliannya	4,6
Lingkungan kerja perusahaan (sosial, politik, agama, dll) sangat baik	4,2
Perusahaan menggunakan tenaga konsultan dalam merencanakan dan membuat strategi TI	3
TOTAL RATA - RATA	**4**

Based on table above , can be explained that company in creating skill alignment of IT strategy and business strategy has been reached level 4 *(Process Improvement)* which means company has responsive in responding to the process of aligning IT strategy with business strategy.

The author also uses the COBIT 2019 method [13] with the APO domain, so the author can provide results method that has been done that is :

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Table 7. Average *sub domain* APO01 (Manage IT Management Framework)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	18	1	94,74%
LEVEL 3	12	6	66,67%
LEVEL 4	3	2	60,00%
LEVEL 5	3	1	75,00%
RATA - RATA			74,10%

Based on table above , you can see that in the APO01 *sub domain that* starts from capability level 2 to capability level 5 have answer respondents vary according to performance employee . Can be seen that at level 2, the company own percentage of 94.74% meaning company has met the required performance standards even though there is 1 answer respondents who have not met performance standards .

Table 8. Average *sub domain* APO02 (Manage Strategy)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	4	3	57,14%
LEVEL 3	11	6	64,71%
LEVEL 4	4	0	100,00%
RATA - RATA			73,95%

Based on table above , you can see that in the APO02 *sub domain that* starts from capability level 2 to capability level 4 have Different responses to each statement . Can be seen that at level 4, the company own percentage 100 % means company has met all performance standards at that level.

Table 9. Average *sub domain* APO03 (Manage Enterprise Architecture)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	6	2	75,00%
LEVEL 3	19	10	65,52%
LEVEL 4	2	0	100,00%
LEVEL 5	0	1	0,00%
RATA - RATA			60,13%

Based on table above , you can see that in the APO03 *sub domain that* starts from capability level 2 to capability level 5 have respond respondent [14] different so it can be seen that at level 4 of the company own

percentage 100 % means company has met all standards at that level.

Table 10. Average *sub domain* APO04 (Manage Innovation)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	7	1	87,50%
LEVEL 3	10	3	76,92%
LEVEL 4	2	1	66,67%
RATA - RATA			77,03%

Based on table above , you can see that on the APO04 *sub domain that* starts from capability level 2 to capability level 4 have answer different respondents so it can be seen that at level 2 has percentage amounting to 87.50% which means company has met performance employees even though there is 1 performance that has not been achieved achieved .

Table 11. Average *sub domain* APO05 (Manage Portfolio)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	2	2	50,00%
LEVEL 3	7	4	63,64%
LEVEL 4	6	0	100,00%
LEVEL 5	2	0	100,00%
RATA - RATA			78,41%

Based on table above , you can see that on the APO05 *sub domain that* starts from capability level 2 to capability level 5 have answer different respondents so it can be seen that at level 4 and level 5 have percentage of

100% which means company has met performance employees as needed .

Table 12. Average *sub domain* APO06 (Manage Budget and Costs)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	13	0	100,00%
LEVEL 3	11	3	78,57%
LEVEL 4	3	0	100,00%
LEVEL 5	2	0	100,00%
RATA - RATA			94,64%

Based on table above , you can see that on the APO06 *sub domain that* starts from capability level 2 to capability level 5 have answer different respondents so it can be seen that at level 2, level 4, and level 5 have percentage of 100% which means company has met performance employees as a whole in achieving company goals .

Table 13. Average *sub domain* APO07 (Manage Human Resources)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	15	3	83,33%
LEVEL 3	11	1	91,67%
LEVEL 4	2	2	50,00%
RATA - RATA			75,00%

Based on table above , you can see that on the APO07 sub domain that starts from

capability level 2 to capability level 4 have answer different respondents so it can be seen that at level 3 has percentage amounting to 91.67% which means company has met performance employees though there is 1 performance that is not yet achieved .

Table 14. Average *sub domain* APO08 (Manage Relationships)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	7	0	100,00%
LEVEL 3	7	1	87,50%
LEVEL 4	3	1	75,00%
LEVEL 5	2	0	100,00%
RATA - RATA			90,63%

Based on table above , it can be seen that on the APO08 *sub domain that* starts from capability level 2 to capability level 5 have answer different respondents so it can be seen that at level 2 and level 5 have percentage of 100% which means company has met performance employees as a whole comply with procedures .

Table 15. Average *sub domain* APO09 (Manage Service Agreement)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	6	0	100,00%
LEVEL 3	6	2	75,00%
LEVEL 4	7	0	100,00%
RATA - RATA			91,67%

Based on table above , you can see that on the APO09 *sub domain that* starts from capability level 2 to capability level 4 have answer different respondents so it can be seen that at level 2 and level 4 have percentage of 100% which means company has met performance employees as needed .

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Table 16. Average *sub domain* APO10 (Manage Vendors)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	3	0	100,00%
LEVEL 3	11	4	73,33%
LEVEL 4	7	1	87,50%
LEVEL 5	3	0	100,00%
RATA - RATA			90,21%

Based on table above , you can see that on the APO10 *sub domain that* starts from capability level 2 to capability level 5 have answer different respondents so it can be seen that at level 2 and level 5 have percentage of 100% which means ompany has met performance employees as needed

Table 17. Average *sub domain* APO11 (Manage Quality)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	1	1	50,00%
LEVEL 3	12	1	92,31%
LEVEL 4	9	0	100,00%
LEVEL 5	2	0	100,00%
RATA - RATA			85,58%

Based on table above , you can see that on the APO11 *sub domain that* starts from capability level 2 to capability level 5 have answer different respondents so it can be seen that at level 4 and level 5 have percentage of 100% which means company has met performance employees as needed

Table 18. Average *sub domain* APO12 (Manage Risk)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	2	4	33,33%
LEVEL 3	13	5	72,22%
LEVEL 4	7	3	70,00%
LEVEL 5	2	0	100,00%
RATA - RATA			68,89%

Based on table above , you can see that on the APO12 *sub domain that* starts from

capability level 2 to capability level 5 have answer different respondents so it can be seen that at level 5 has percentage of 100% which means company has met performance employees as needed .

Table 19. Average *sub domain* APO13 (Manage Security)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	0	7	0,00%
LEVEL 3	3	3	50,00%
LEVEL 4	4	1	80,00%
LEVEL 5	0	1	0,00%
RATA - RATA			32,50%

Based on table above , you can see that on the APO13 *sub domain that* starts from capability level 2 to capability level 5 have answer different respondents so it can be seen that at level 4 has percentage by 80% different the same as level 2 and level 5 percentage of 0%

Table 20. Average *sub domain* APO14 (Manage Data)

LEVEL	JAWABAN		PROSENTASE
	Y	N	
LEVEL 2	9	7	56,25%
LEVEL 3	11	10	52,38%
LEVEL 4	1	16	5,88%
LEVEL 5	2	3	40,00%
RATA - RATA			38,63%

Based on table above , you can see that on the APO14 *sub domain that* starts from capability level 2 to capability level 5 have answer different respondents so it can be seen that at level 2 has percentage amounting to 56.25% which means company has met sufficient performance employees though still There is Lots things that need to be improved . [15]

IV . CONCLUSION

Conclusions of The results of the research compiled can be said to be that

measurement level maturity by method *Luftman's model of maturity* is still there is weakness in the IT manager who coordinates directly with the director so it is necessary improvements related to structure organization to make things easier apply *service level agreement* as well as use of third parties in IT strategy planning .

Next conclusion related to governance evaluation system information using COBIT 2019 in the *Align, Plan, and Organize* (APO) domain , namely formation special committee related to IT in managing whole performance IT systems and carry out testing by all employees in the use of established IT special team from the company

REFERENCE

[1] AFK Sari Kartika, Agustina Dian Sri "Jurnal of Information Systems (JSIM)," p. August 7, 2022.

[2] DA Ranto Partomuan Sihombing, Noorlailie Soewarno, "The mediating effect of Fraud awareness on the relationship between risk management and integrity systems," p. August 17,2022

[3] ENAY Theresia Dwi Hastuti, Imam Ghozali, "The influence of the company life cycle on accrua learnings management with an internal control system as a moderating variable," p. 11, 2017.

[4] B. University, "5 Principles of COBIT 5," p. August 1, 2021, [Online]. Available: https://sis.binus.ac.id/2021/03/19/5 - princi-cobit-5/

[5] RI Handayani, "PT-BIT alignment-maturity-level study," p. 8, 2016.

[6] "Understanding COBIT 5 and its Function for Information Security," 2020. https://itgid.org/pengertian-cobit-5/

[7] FE and Business, "Understanding Information Systems Audit," 2020. https:// Ekonomi.bunghatta.ac.id/index.php/i d/article/356-pengertian-audit-sistem- information

[8] Syafnidawaty, "PRIMER DATA,"2020. https://raharja.ac.id/2020/11/08/data-primer/

[9] YB Saputra, I Nyoman Sujana, "MEASURING THE LEVEL OF CAPABILITY AND IMPROVING INFORMATION TECHNOLOGY GOVERNANCE BASED ON COBIT5 WORK," p. August 12, 2021.

[10] MR Adani, "Understanding Information Systems and How to Implement Them," 2021. https://www.sekawanmedia.co.id/bl og/apa-itu-sistem-information/

[11] IH Ranto Partomuan Sihombing, I Made Narsa, "Big data analysis and auditor assessment of an experimental study," p. August 16, 2023.

[12] PJ Romney, MB, Steinbart, *Accounting Information Systems, Global Edition, 15th Edition* . 2020. [Online]. Available: https://bookshelf.vitalsource.com/#/b o oks/9781292353371

[13] SEMAk., Lusianah, "Cobit 5 Principles," 2020.https://accounting.binus.ac.id/2 020/12/20/princi-principle-cobit-5/

[14] A. A, "Understanding ResearchInformants and Examples," *2022* , 21Dec 2022.

https://penelitianilmiah.com/informa n- penelitian/ (accessed 08 May 2023).

[15]   B.   University,   "Internal Auditing."https://accounting.binus.ac .id/2017/06/20/internal-audit/