Tata Kelola Teknologi Informasi

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Romi Satria Wahono

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- B.Eng, M.Eng and Ph.D in Software Engineering
  Saitama University Japan (1994-2004)
  Universiti Teknikal Malaysia Melaka (2014)
- Research Interests in Software Engineering and Machine Learning
- LIPI Researcher (2004-2007)
- Professional Member of IEEE, ACM and PMI
- IT Award Winners from WSIS (United Nations), Kemdikbud, LIPI, etc
- Industrial IT Certifications: TOGAF, ITIL, CCNA, etc
- IT Enterprise Architect: KPK, UNSRI, LIPI, Ristek Dikti, DJPK Kemenkeu, etc
- Founder and CEO:
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  - PT Brainmatics Cipta Informatika

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Lecture Notes in Software Engineering, Computing Research and Technopreneurship

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BAGAIMANA MELAKUKAN PENELITIAN YANG BAIK?

Pada artikel ini, saya mencoba merangkumkan tahapan melakukan penelitian yang ditulis oleh Prof Bochman. Tulisan pendek berjudul "How to do Good Research" ini, sebenarnya tidak terlalu jauh berbeda dengan artikel yang saya tulis di blog ini tentang, Tahapan Memulai Penelitian

TAHAPAN PENELITIAN DENGAN FOKUS PERBAIKAN METODE

Di artikel sebelumnya, saya sudah menjelaskan secara komprehensif tentang Tahapan Memulai Penelitian untuk

MIND MAP UNTUK MEMAHAMI TOPIK PENELITIAN

Satu hal penting yang biasanya dilupakan mahasiswa ketika melakukan penelitian adalah, memahami secara

KONTRIBUSI PENELITIAN DAN PERBAIKAN METODE

MENGAPA KONTRIBUSI PENTING DALAM PENELITIAN? Banyak mahasiswa, yang sedang melakukan penelitian untuk

METODE MENGELOLA PENELITIAN TESIS MAHASISWA

PROBLEMS AND REQUIREMENTS Semakin banyaknya jumlah mahasiswa bimbingan, membuat saya harus sedikit

TAHAPAN MEMULAI PENELITIAN UNTUK MAHASISWA GALAU

Jujur, secara umum saya agak kecewa dengan pertanyaan mahasiswa tingkat akhir yang masuk lewat email, inbox FB dan

CIYUS, CUMPAH, NGEBLOG ITU WOW BANGET!

27 Oktober, hari blogger! Lha kok sepi? Ya sudah banyak blogger yang lupa dengan hari jadinya, termasuk saya

MENUJU KEBEBASAN YANG MEMBEBASKAN

Sebuah essay kecil yang saya susun untuk para mahasiswa dan generasi muda, khususnya yang bergerak di bidang

KIAT MENYUSUN KERANGKA PEMIKIRAN PENELITIAN

Kerangka pemikiran adalah suatu diagram yang menjelaskan secara garis besar alur logika berjalannya sebuah

5 KARAKTER PARA INOVATOR

Menarik membaca buku yang ditulis oleh Carmine Gallo berjudul Rahasia Inovasi Steve Jobs (The Innovation Secrets of

KIAT MENYUSUN ALUR LATAR BELAKANG MASALAH PENELITIAN

Latar belakang masalah penelitian (research background) adalah bagian pertama dan sangat penting

LECTURES

Mata kuliah yang saya ajar di berbagai universitas di Indonesia. Seluruh materi kuliah bisa diunduh dan digunakan dengan bebas. Setiap halaman mata kuliah memuat course description, standard competency, slide, software requirements, dan textbook yang digunakan.

Computing Courses	• Research Methodology (updated January 2015) • Data Mining (updated January 2015) • Theory of Computation (updated March 2015)
Programming Courses	• Java Fundamentals (updated October 2013) • Java Enterprise Edition
Software Engineering Courses	• Systems Analysis and Design (updated January 2015) • Business Process Model and Notation (updated January 2015) • Software Engineering • Software Testing • Software Quality Assurance • Project Management
Enterprise Architecture Courses	• TOGAF 9.1 Fundamental • TOGAF 9.1 Foundation • TOGAF 9.1 Certified

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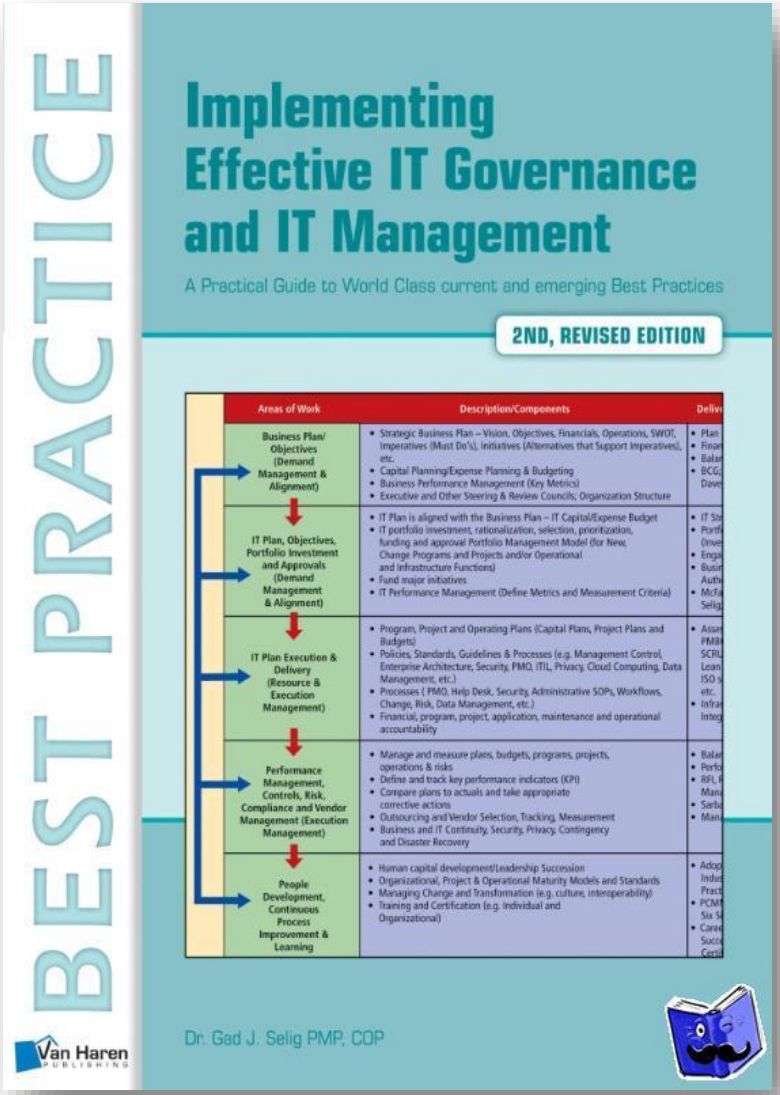
Kuliah 20 Menit tentang Metodologi Penelitian

1,756 views • 4 weeks ago

Kuliah 10 Menit tentang Data Mining

1,898 views • 1 month ago

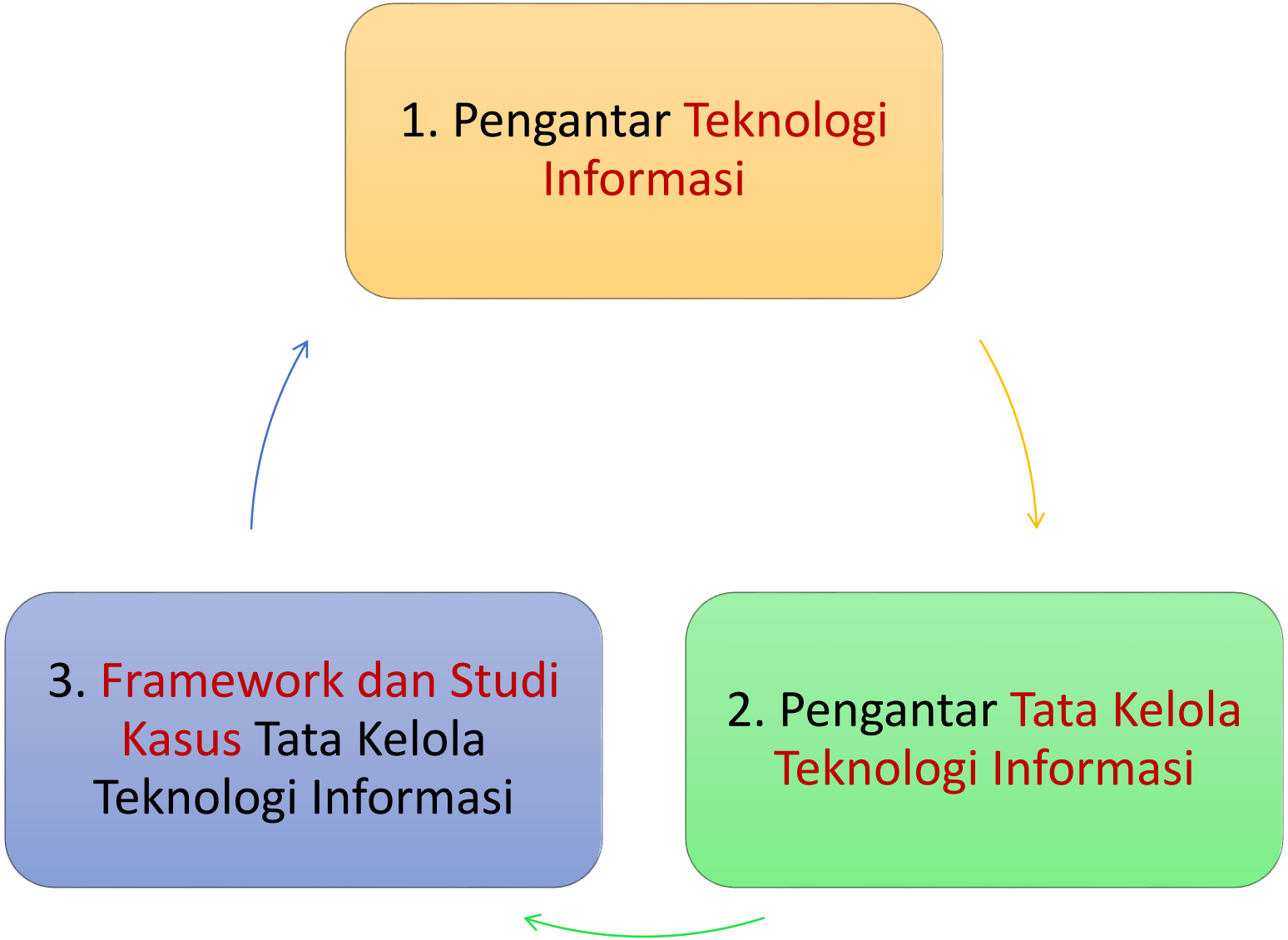
Textbooks



Pre-Test (Jawab dengan Jujur)

1. Menurut anda, apakah teknologi informasi itu benar-benar sesuai dengan yang digembar gemborkan orang-orang? Atau menurut anda hanya omong kosong, membuang-buang uang dan tidak ada manfaatnya? Atau malah keberadaannya hanya mengganggu pekerjaan saja?
2. Sebutkan beberapa aplikasi teknologi informasi yang telah sukses diterapkan di organisasi anda!
3. Apakah aplikasi tersebut anda sebut sukses karena membuat pekerjaan menjadi lebih cepat atau efisien? Atau bisa karena faktor lain? Menurut anda, apa saja kriteria aplikasi teknologi informasi itu disebut sukses diterapkan?
4. Apa yang anda harapkan dari workshop tata kelola ini? Pengetahuan apa yang anda inginkan? Atau karena hanya penugasan dan anda tidak paham atau malah anda sebenarnya tidak tertarik dengan workshop ini?

Course Outline



1. Pengantar Teknologi Informasi

1.1 Peluang dan Tantangan Penerapan Teknologi Informasi

1.2 5 Mitos Kesalahan Penerapan Teknologi Informasi

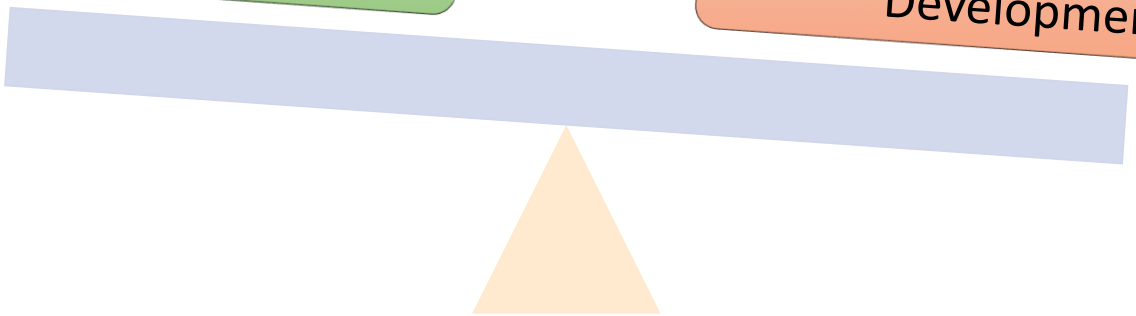
1.1 Peluang dan Tantangan Penerapan Teknologi Informasi

Peluang

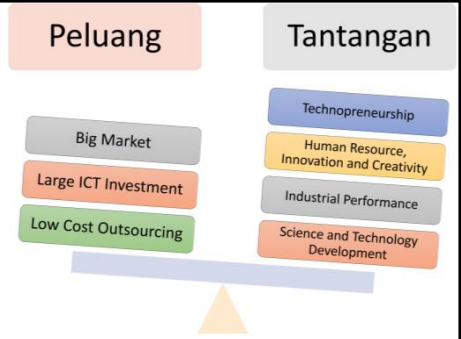
- Big Market
- Large ICT Investment
- Low Cost Outsourcing

Tantangan

- Technopreneurship
- Human Resource, Innovation and Creativity
- Industrial Performance
- Science and Technology Development



Large ICT Investment

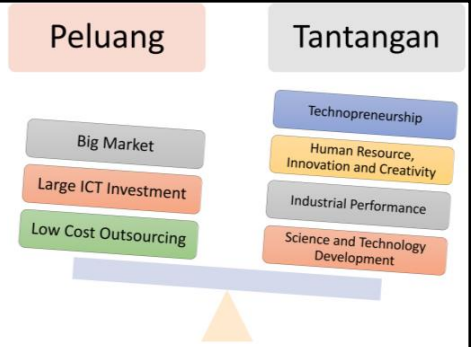


- Total ICT investment in Indonesia per year:
  - US$33 billion *(Global Connectivity Index 2016)*
  - US$15.8 billion *(IDC Report 2016)*

- 90% of this investment will go on hardware
  - Domestic and international companies continue to setup and expand into the eastern region of the archipelago nation (6,000 islands)

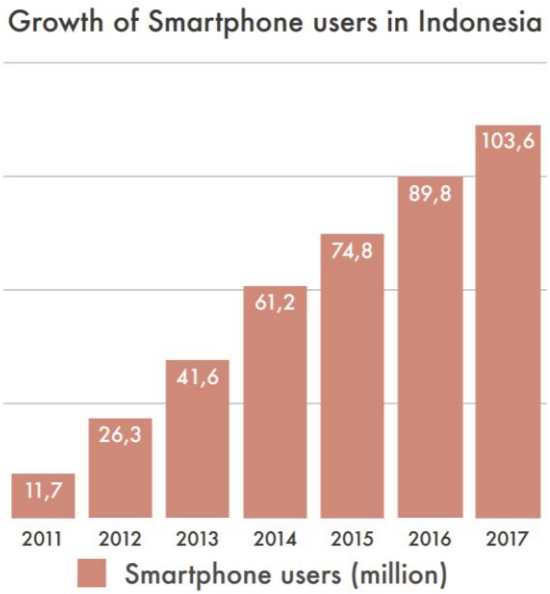
(Global Connectivity Index 2016)

Big Market (Internet Penetration)



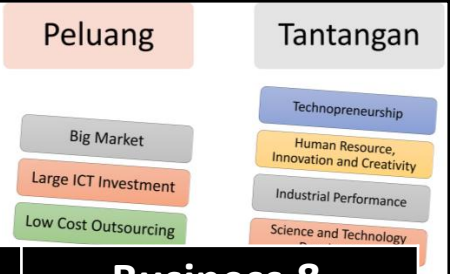
#	Country or Region	Population, 2015 Est	Internet Users Year 2000	Internet Users 30 Nov 2015	Penetration (% Population)
1	China	1,361,512,535	22,500,000	674,000,000	49.5 %
2	India	1,251,695,584	5,000,000	375,000,000	30.0 %
3	United States	321,368,864	95,354,000	280,742,532	87.4 %
4	Brazil	204,259,812	5,000,000	117,653,652	57.6 %
5	Japan	126,919,659	47,080,000	114,963,827	90.6 %
6	Russia	146,267,288	3,100,000	103,147,691	70.5 %
7	Nigeria	181,562,056	200,000	92,699,924	51.1 %
8	Indonesia	255,993,674	2,000,000	78,000,000	30.5 %
9	Germany	81,174,000	24,000,000	71,727,551	88.4 %
10	Mexico	121,736,809	2,712,400	60,000,000	49.3 %
11	United Kingdom	64,767,115	15,400,000	59,333,154	91.6 %
12	France	66,132,169	8,500,000	55,429,382	83.8 %
13	Bangladesh	168,957,745	100,000	53,941,000	31.9 %
14	Egypt	88,487,396	450,000	48,300,000	54.6 %
15	Vietnam	94,348,835	200,000	47,300,000	50.1 %
16	Philippines	109,615,913	2,000,000	47,134,843	43.0 %
17	Iran	81,824,270	250,000	46,800,000	57.2 %
18	Turkey	77,695,904	2,000,000	46,282,850	59.6 %
19	Korea	49,115,196	19,040,000	45,314,248	92.3 %
20	Thailand	67,976,405	2,300,000	38,000,000	55.9 %
TOP 20 Countries		4,921,411,229	257,186,400	2,455,770,654	49.9 %
Rest of the World		2,338,491,014	103,799,092	910,490,502	38.9 %
Total World Users		7,259,902,243	360,985,492	3,366,261,156	46.4 %

(Source: Internet World Stats, 2015)



(Source: Thomas Klaffke, Top Trends in Indonesia, 2014)

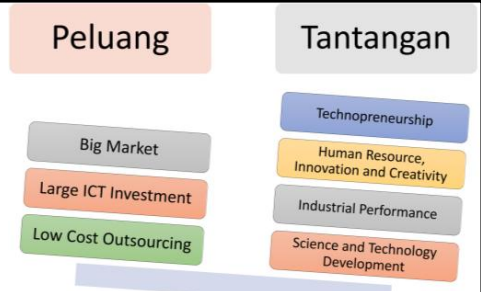
Outsourcing Index



Overall rank	Country	Overall outsourcing index	Cost competitiveness index	Resources & skills index	Business & economic environment index
1	India	7.1	8.3	6	4.2
2	**Indonesia**	**6.7**	**8.6**	**4.3**	**4.4**
3	Estonia	6.6	7.5	5.2	6.9
4	Singapore	6.5	6.4	5.7	9.4
5	Bulgaria	6.4	8.8	2.9	5.2
6	China	6.4	7	5.6	5.6
7	Philippines	6.3	9	2.8	3.9
8	Lithuania	5.9	7	3.9	6.5
9	Thailand	5.9	8.2	2.3	5.9
10	Malaysia	5.8	7.9	2.2	6.9

(Source: Clutch Research Report on Outsourcing Index 2014)

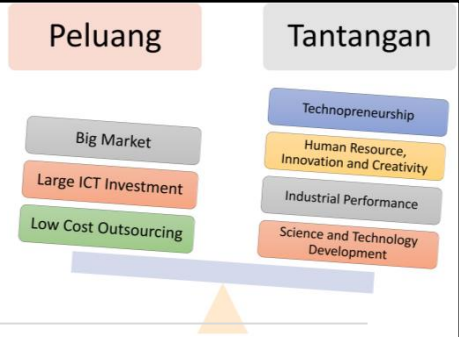
Global Service Location Index

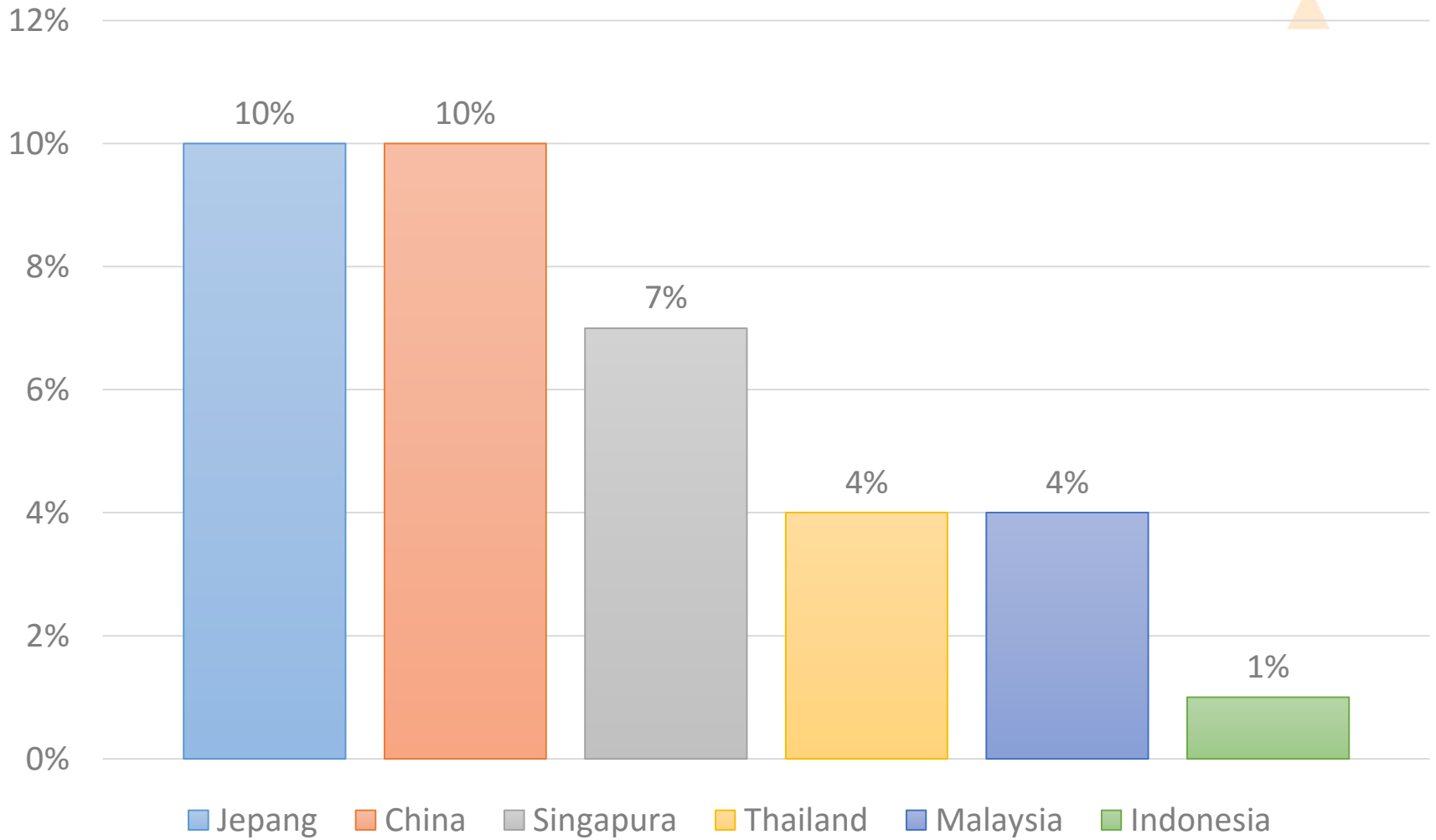


Rank	Δ	Country	Financial attractiveness	People skills and availability	Business environment	
1	0	India	3.22	2.55	1.19	**6.96**
2	0	China	2.28	2.71	1.51	**6.49**
3	0	Malaysia	2.75	1.42	1.89	**6.05**
4	4	Brazil	2.34	2.07	1.59	**6.00**
5	0	Indonesia	3.23	1.54	1.22	**5.99**
6	0	Thailand	3.04	1.44	1.44	**5.92**
7	0	Philippines	3.17	1.43	1.29	**5.88**
8	−4	Mexico	2.71	1.56	1.61	**5.87**
9	4	Chile	2.58	1.26	1.88	**5.72**
10	1	Poland	2.41	1.37	1.90	**5.68**
11	1	Vietnam	3.19	1.25	1.22	**5.66**
12	−3	Bulgaria	2.99	0.94	1.66	**5.60**
13	5	Romania	2.79	1.16	1.64	**5.59**
14	2	Sri Lanka	3.37	1.03	1.14	**5.54**
15	−1	United States	0.52	2.88	2.11	**5.51**
16	−6	Egypt	3.20	1.29	0.96	**5.45**
17	4	Russia	2.23	1.80	1.34	**5.38**
18	5	Latvia	2.70	0.99	1.64	**5.33**
19	5	Costa Rica	2.70	0.90	1.72	**5.32**
20	23	Colombia	2.48	1.38	1.46	**5.32**
21	18	Turkey	2.37	1.40	1.54	**5.31**
22	4	Bangladesh	3.34	1.10	0.87	**5.31**

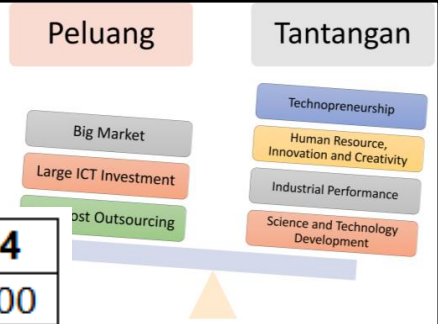
(A.T. Kearney Global Service Location Index 2016)

Technopreneurship Ratio





Developers and ICT Workers



Role		Estimated # for 2014
ICT-skilled workers	Professional software developers	11,005,000
	ICT operations and management skilled workers	18,008,900
	Total	29,013,900
Software Developers	Professional software developers	11,005,000
	Hobbyist software developers	7,534,500
	Total	18,539,500

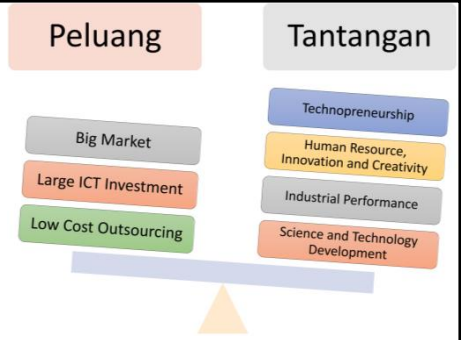
(Source: IDC 2014 Worldwide Software Developer and ICT-Skilled Worker Estimates)

Negara	2005	2006	2007	2008	Prosentase Regional	Prosentase Dunia
India	804	1.007	1.256	1.563	36%	10,5%
Cina	459	575	717	878	20,2%	5,9%
Australia	200	210	220	231	5,3%	1,6%
Indonesia	50	56,5	64	72	1,6%	0,6%
Hongkong	16	17	18	20	0,5%	0,1%
Malaysia	17	18	19,5	21	0,5%	0,1%

Sumber: IDC, Romi Satrio.

(Source: IDC Professional Developer Index)

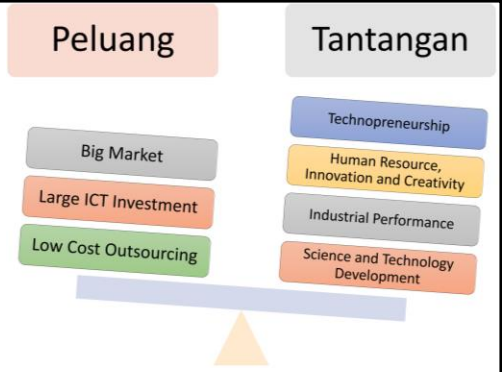
Global Innovation Index



Country/Economy	Score (0–100)	Rank
Peru	34.73	73
Georgia	34.53	74
Oman	33.87	75
India	33.70	76
Lebanon	33.60	77
Tunisia	32.94	78
Kazakhstan	32.75	79
Guyana	32.48	80
Bosnia and Herzegovina	32.43	81
Jamaica	32.41	82
Dominican Republic	32.29	83
Morocco	32.24	84
Kenya	31.85	85
Bhutan	31.83	86
Indonesia	31.81	87
Brunei Darussalam	31.67	88

(Source: Global Innovation Index 2014, WIPO, Cornell University)

Human Development Index

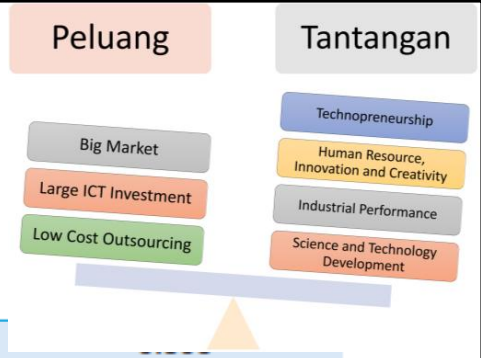


	HDI value	HDI rank	Life expectancy at birth (years)	Expected years of schooling (years)	Mean years of schooling (years)	GNI per capita (2005 PPP $)
Colombia	0.719	91	73.9	13.6	7.3	8,711
Egypt	0.662	112	73.5	12.1	6.4	5,401
Indonesia	0.629	121	69.8	12.9	5.8	4,154
Korea (Republic of)	0.909	12	80.7	17.2	11.6	28,231
Mexico	0.775	61	77.1	13.7	8.5	12,947
South Africa	0.629	121	53.4	13.1	8.5	9,594
Turkey	0.722	90	74.2	12.9	6.5	13,710
Viet Nam	0.617	127	75.4	11.9	5.5	2,970
CIVETS	0.661	-	70.6	12.7	6.3	6,189
MIST	0.688	-	70.5	13.1	6.8	8,287

- Indonesia performs worse than the average MIST country
- Its HDI is higher than Vietnam's only

(Source: Human Development Report 2013)

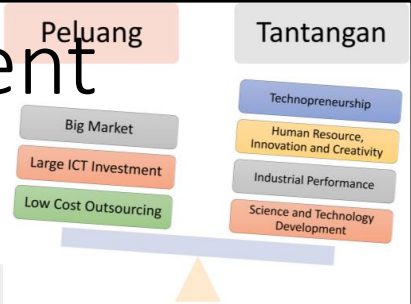
Global Creativity Index



TOTAL RANK	COUNTRY	TECHNOLOGY	TALENT	TOLERANCE	
63	Trinidad and Tobago	53	70	43	
65	Kyrgyzstan	50	53	65	0.297
66	Peru	56	62	53	0.287
67	Uganda	35	79	59	0.276
68	Turkey	51	59	64	0.272
69	Mongolia	—	51	73	0.270
70	Azerbaijan	44	67	72	0.236
71	El Salvador	67	73	47	0.220
71	Thailand	64	56	67	0.220
73	Jamaica	57	60	71	0.215
74	Honduras	58	77	56	0.203
75	Madagascar	70	82	40	0.199
76	Saudi Arabia	—	57	79	0.191
77	Paraguay	71	72	54	0.179
78	Iran	—	71	68	0.171
79	Viet Nam	68	78	70	0.102
80	Pakistan	73	74	81	0.053
81	Indonesia	74	80	78	0.037
82	Cambodia	75	81	80	0.020

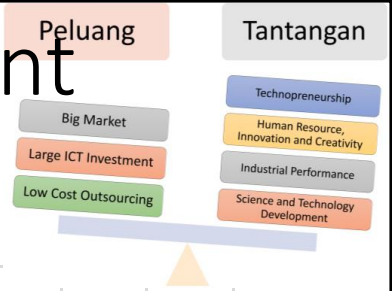
(Source: Martin Prosperity Institute, Global Creativity Index 2011)

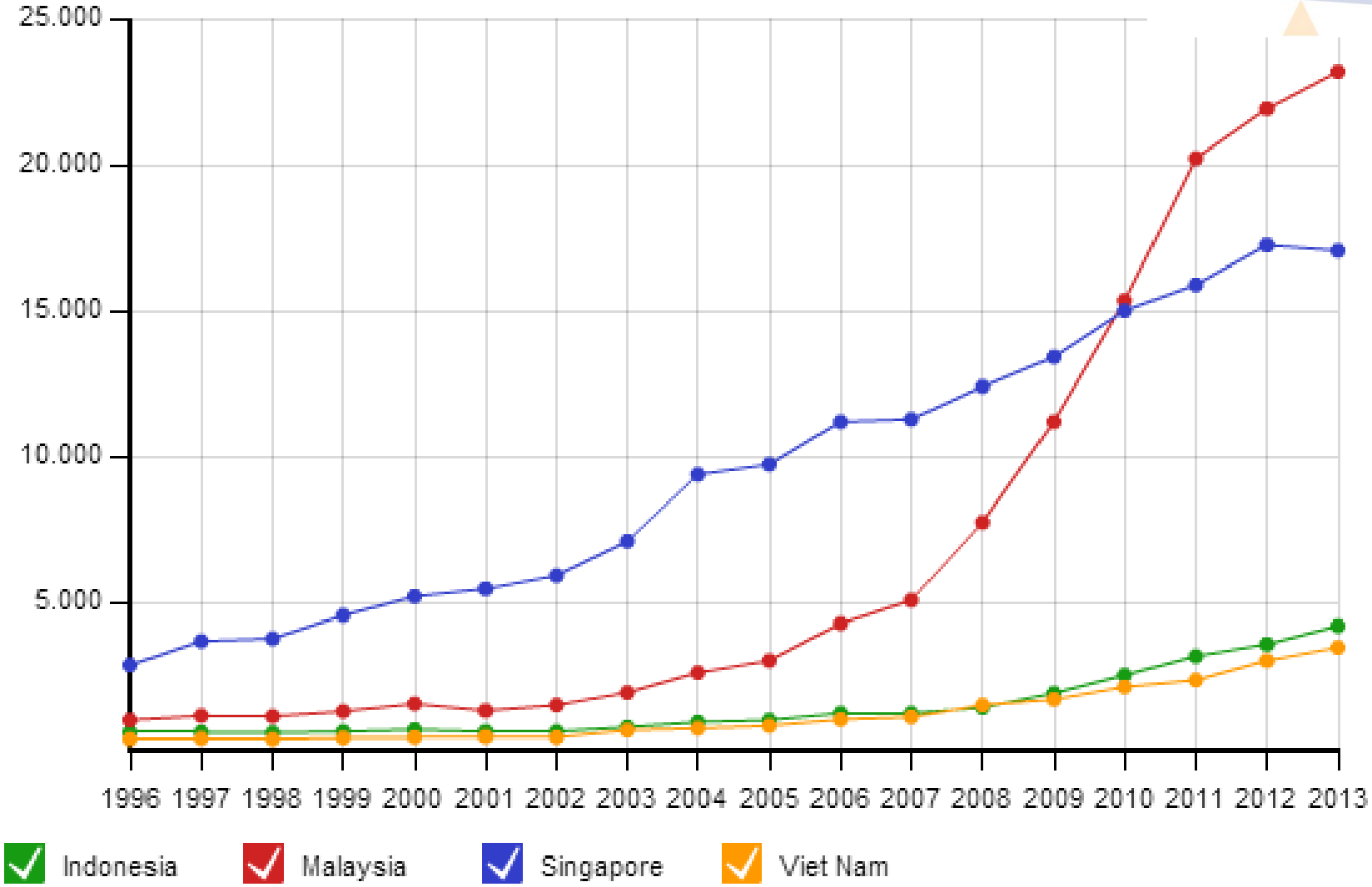
Science and Technology Development
(ScimagoJR.Com)



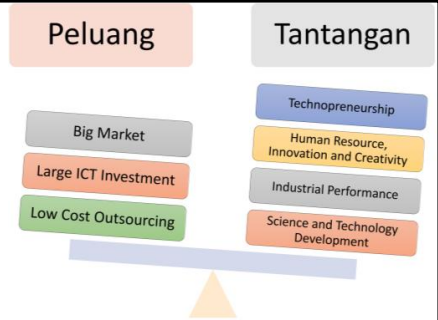
49	Slovenia	50.565	49.471	403.209	83.402		
50	Bulgaria	45.348	44.609	319.449	56.183		
51	Nigeria	40.952	40.124	174.002	42.457	6,23	89
52	Tunisia	38.334	36.859	169.981	39.062	6,77	85
53	Colombia	35.890	34.768	228.686	36.843	10,61	133
54	Serbia	28.882	28.312	81.010	23.288	8,75	68
55	Morocco	27.253	26.175	157.219	29.432	7,11	99
56	Venezuela	27.138	26.445	204.691	29.729	8,42	130
57	Algeria	25.714	25.387	105.945	20.698	6,49	78
58	Belarus	24.801	24.466	122.850	24.438	5,08	106
59	Lithuania	24.755	24.434	151.748	37.377	8,61	109
60	Cuba	24.606	23.847	123.183	28.193	5,81	93
61	Indonesia	20.166	19.740	146.670	16.149	10,94	112
62	Jordan	19.847	19.507	107.550	15.257	7,24	82
63	Bangladesh	19.481	19.037	115.329	22.662	8,37	97
64	Estonia	19.141	18.774	204.306	38.547	13,58	130
65	United Arab Emirates	19.051	18.331	100.247	11.207	7,56	87
66	Kenya	16.727	16.044	206.886	34.874	15,09	131
67	Viet Nam	16.474	16.116	125.927	18.500	11,79	107
68	Kuwait	13.775	13.425	93.290	12.879	7,67	83
69	Lebanon	13.677	12.847	97.316	10.182	9,70	97
70	Philippines	13.163	12.796	141.070	15.727	13,38	116

Science and Technology Development
(ScimagoJR.Com)





Indeks Kreatifitas Lain



Indonesia Ranking

Indikator pencapaian Indonesia dalam kreativitas bangsa secara nasional dilihat dari beberapa Index berikut yang dapat menjadi acuan dan barometer masyarakat kreatif.

38

Industrial Competitiveness

(38/133)

Sumber: UNIDO

38

Global Competitiveness

(38/148)

Sumber: World Economy Forum

76

Network Readiness

(76/144)

Sumber: World Economy Forum

1.2 5 Mitos Kesalahan Penerapan Teknologi Informasi

MITOS 1

Cara Sekarang Masih Manual, Saya akan Terapkan Teknologi Informasi

Kegagalan Project Teknologi Informasi

50% lebih project teknologi informasi gagal
(42% - Standish Group, 53% - General Accounting Office)

- Dibatalkan sebelum selesai
- Selesai tapi tidak pernah dipakai
- Tidak bermanfaat bagi pengguna
- Tidak sesuai dengan keinginan pengguna

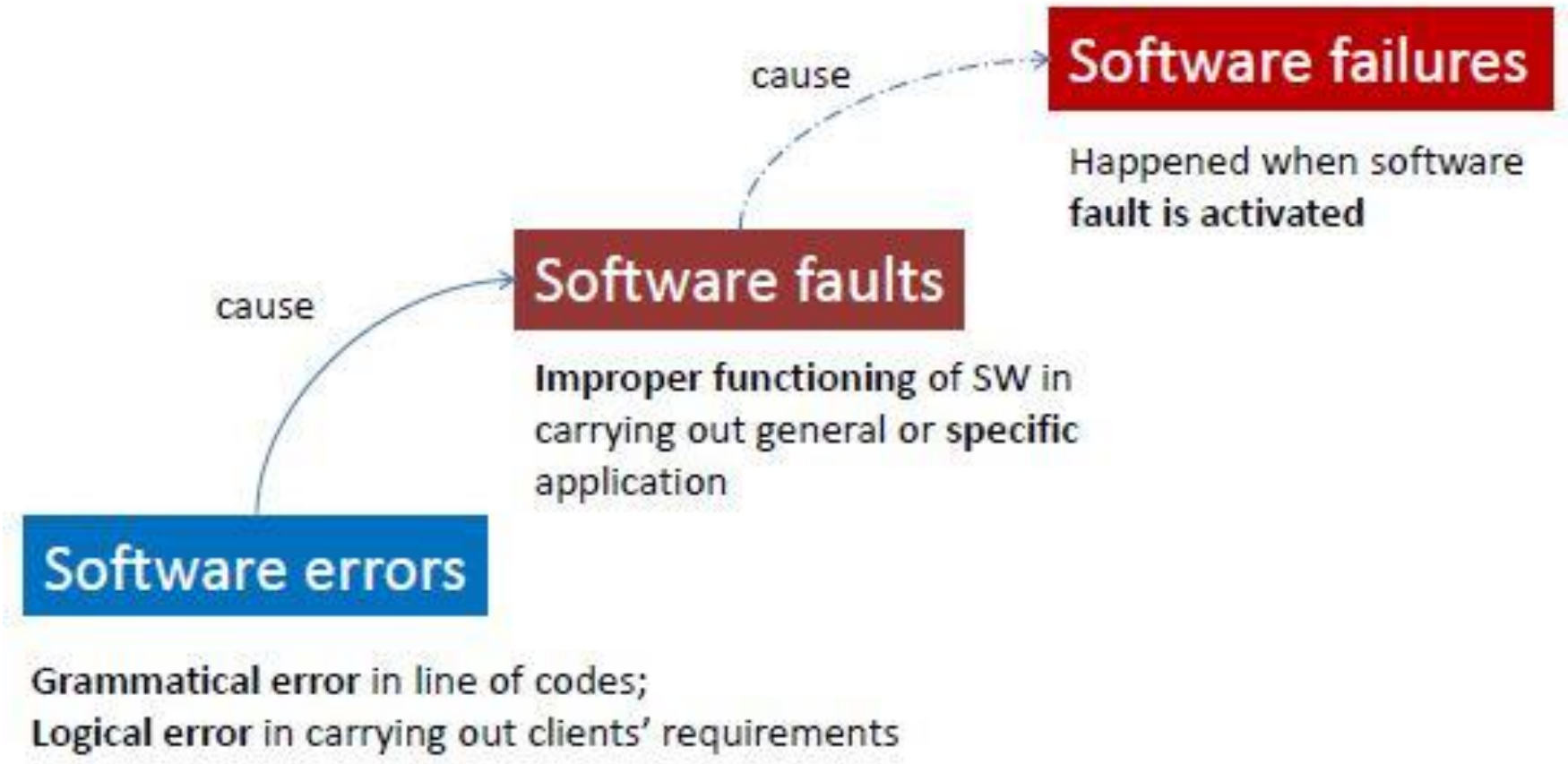
Size Berbanding Lurus dengan Kegagalan

Company	Year	Outcome
Hudson Bay (Canada)	2005	Inventory system problems lead to $33.3 million loss
UK Inland Revenue	2004/5	$3.45 billion tax-credit overpayment caused by software errors
Avis Europe PLC (UK)	2004	Enterprise resource planning (ERP) system cancelled after $54.5 million spent
Ford Motor Co.	2004	Purchasing system abandoned after deployment costing approximately $400 M
Hewlett-Packard Co.	2004	ERP system problems contribute to $160 million loss
AT&T Wireless	2004	Customer relations management (CRM) system upgrade problems lead to $100M loss

Keunikan dari Software

Karakteristik	Software	Hardware
Kompleksitas	Tingkat kompleksitas dari produk software tinggi, dengan kemungkinan perubahan parameter dan fungsi yang sangat beragam	Tingkat kompleksitas produk lain rendah, dengan kemungkinan perubahan parameter dan fungsi tidak beragam
Visibilitas Produk	Produk tidak terlihat dengan kasat mata, termasuk bila ada cacat (*defect*) dari produk	Produk terlihat dengan kasat mata, termasuk bila ada cacat (*defect*) dari produk

Software Errors, Faults, Failures



Software Errors != Failures

- Suatu perusahaan PT ABC memproduksi software yang akan ditanam ke dalam suatu device
- Salah satu fungsi yang terdapat pada software adalah akan mematikan device secara otomatis apabila suhu ruangan lebih besar daripada 30^{o} celcius
- Programmer salah menuliskan logika menjadi:

```
...
if (suhu > 3) shutdownDevice();
...
```

- Error ini tidak pernah menyebabkan failure pada software, dan perusahaan PT ABC sampai saat ini terkenal sebagai perusahaan yang memproduksi software tanpa bug
- Jelaskan mengapa bisa terjadi demikian!

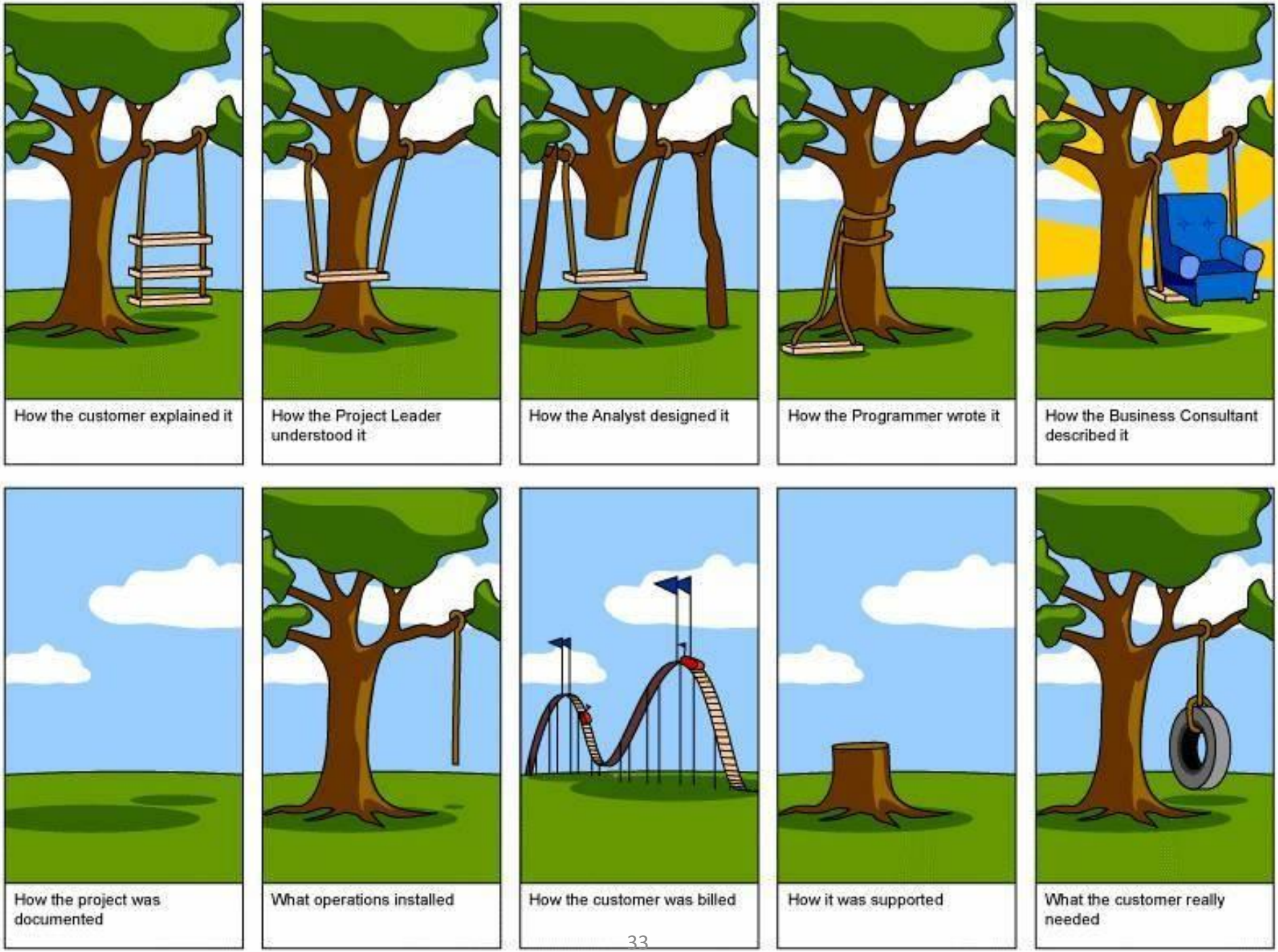
Warranty Lawsuits

- Mortenson vs. Timeberline Software (TS) (≈1993)
  - Mortenson menggunakan software yang diproduksi TS untuk membuka tender pembangunan rumah sakit
  - Software memiliki bug sehingga memenangkan perusahaan yang mengajukan proposal paling mahal (kerugian 2 miliar USD)
  - TS tahu tentang bug itu, tapi tidak mengirimkan update ke Mortenson
  - Pengadilan di Amerika Serikat memenangkan perusahaan TS

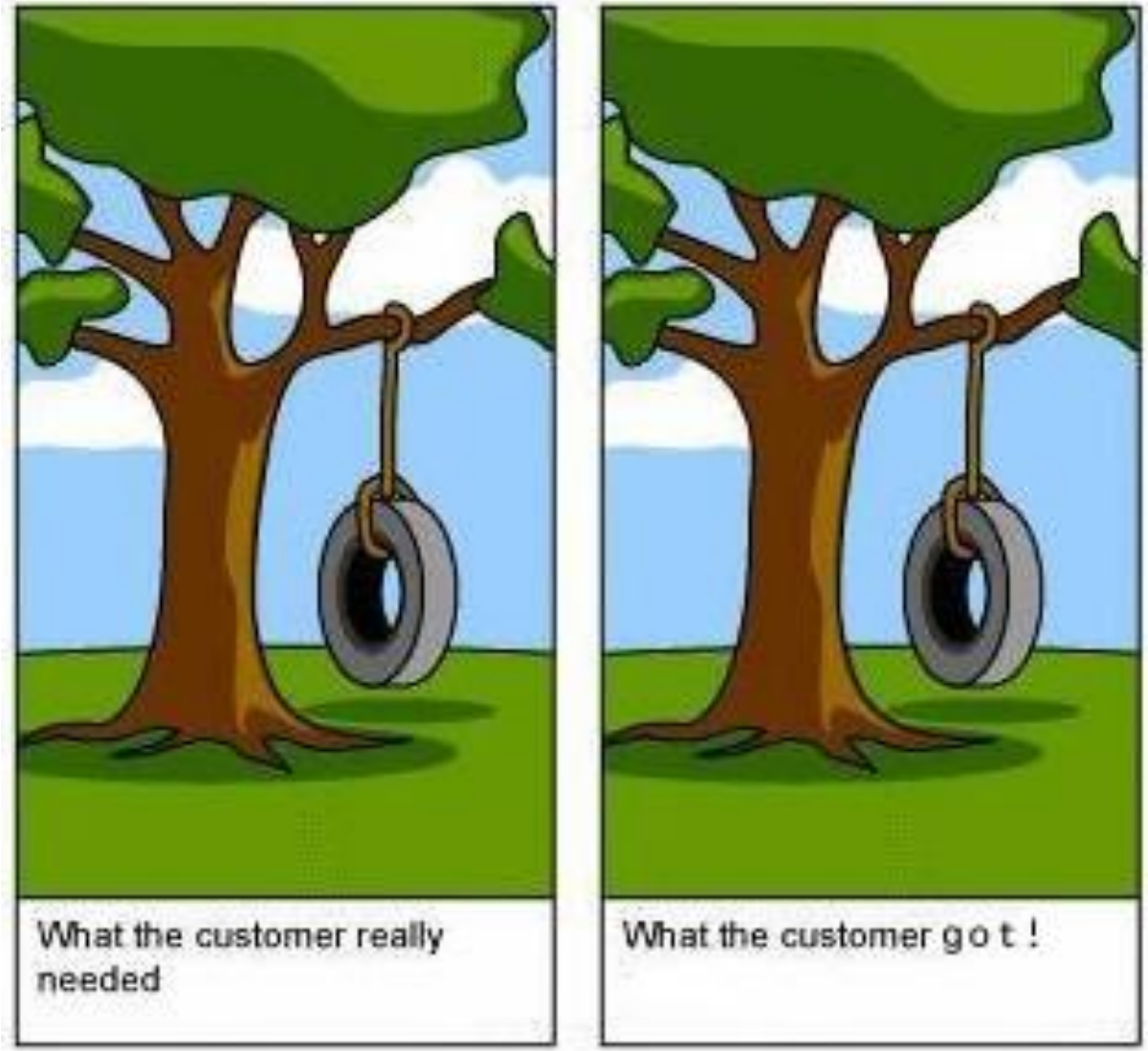
- Uniform Computer Information Transaction Act (UCITA) allows software manufacturers to:
  - disclaim all liability for defects
  - prevent the transfer of software from person to person

Disclaimer of Warranties

DISCLAIMER OF WARRANTIES. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, MICROSOFT AND ITS SUPPLIERS PROVIDE TO YOU THE SOFTWARE COMPONENT, AND ANY (IF ANY) SUPPORT SERVICES RELATED TO THE SOFTWARE COMPONENT ("SUPPORT SERVICES") **AS IS AND WITH ALL FAULTS**; AND MICROSOFT AND ITS SUPPLIERS HEREBY DISCLAIM WITH RESPECT TO THE SOFTWARE COMPONENT AND SUPPORT SERVICES ALL WARRANTIES AND CONDITIONS, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY (IF ANY) WARRANTIES OR CONDITIONS OF OR RELATED TO: TITLE, NON-INFRINGEMENT, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, LACK OF VIRUSES, ACCURACY OR COMPLETENESS OF RESPONSES, RESULTS, LACK OF NEGLIGENCE OR LACK OF WORKMANLIKE EFFORT, QUIET ENJOYMENT, QUIET POSSESSION, AND CORRESPONDENCE TO DESCRIPTION. **THE ENTIRE RISK ARISING OUT OF USE OR PERFORMANCE OF THE SOFTWARE COMPONENT AND ANY SUPPORT SERVICES REMAINS WITH YOU**.


How the customer explained it
How the Project Leader understood it
How the Analyst designed it
How the Programmer wrote it
How the Business Consultant described it
How the project was documented
What operations installed
How the customer was billed
How it was supported
What the customer really needed

Tantangan Pengembangan Teknologi Informasi



Software Tidak Dibutuhkan?

- Analisis lagi software mahal yang kita miliki:
  - Sistem Komputerisasi KTP
  - Sistem e-KTP
  - Sistem Pencatatan Pembersihan Toilet
  - Sistem e-Learning di Universitas

- Software datang untuk memberi manfaat dan mempercepat pekerjaan manusia
  - Software datang bukan hanya karena ingin mengubah cara sekarang yang masih manual

Divisi IT = *Cost Center*?

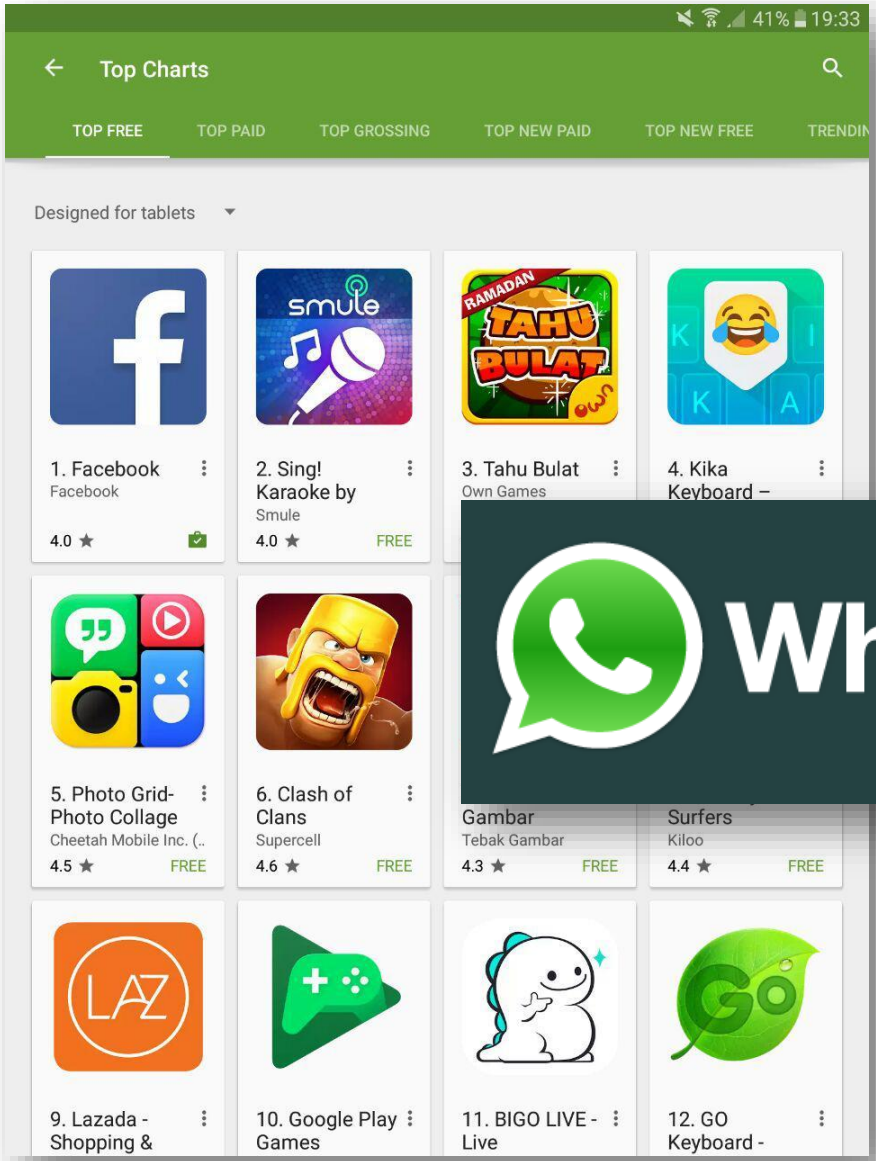
- Divisi IT bukanlah tempat menghabiskan anggaran

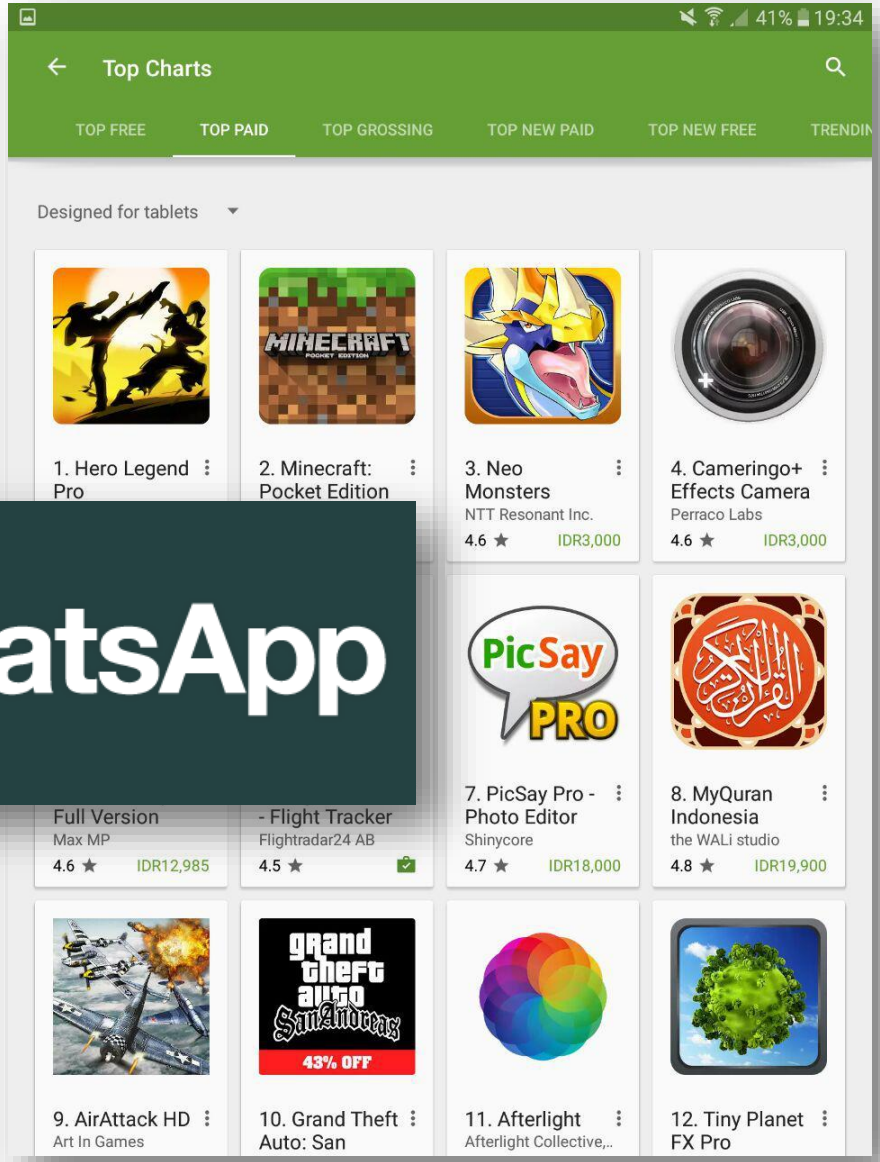
- Divisi IT dibentuk supaya seluruh proses bisnis organisasi bisa berjalan lebih efektif dan efisien

MITOS 2

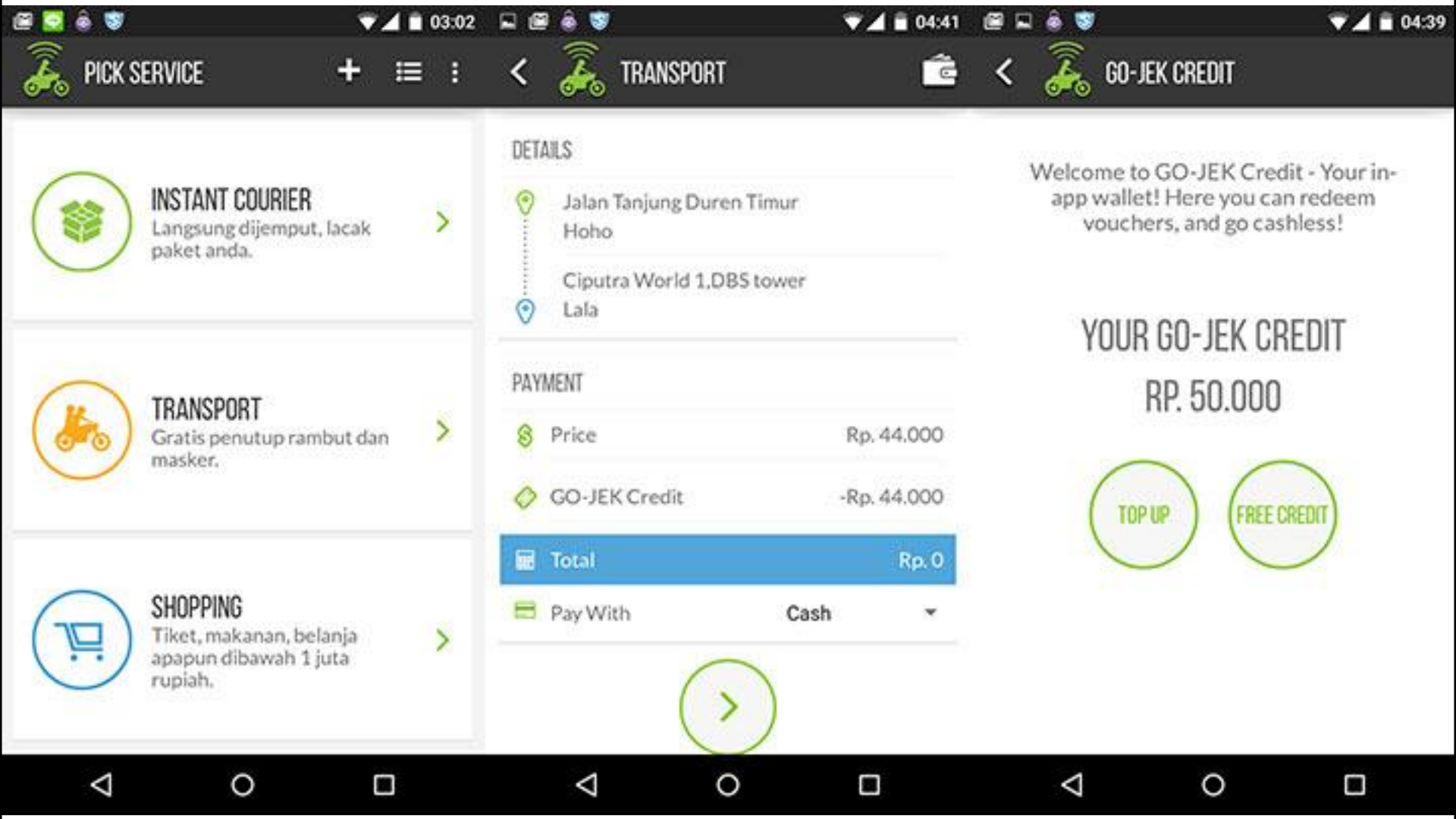
Kualitas Software Dinilai dari Teknologi yang Digunakan

Teknologi Dibalik Software yang Sukses?





Berapa Harga Aplikasi Gojek?



4 HappyFresh

HappyFresh
TOTAL PENDANAAN
US$12 juta

TAHAP PENDANAAN: SERI-A
KATEGORI: E-COMMERCE

sa pesan kebutuhan
harian dari HappyFresh,
an diantarkan oleh jasa
gsung ke depan pintu
amu.

5 Qraved

Qraved
TOTAL PENDANAAN
US$8 juta

TAHAP PENDANAAN: SERI-B
KATEGORI : FOOD TECH

1 tokopedia

Tokopedia
TOTAL PENDANAAN
US$100 juta

TAHAP PENDANAAN : SERI-E
KATEGORI : E-COMMERCE

Marketplace e-commerce ini adalah *startup* kawakan di Indonesia yang kini hampir berusia 7 tahun. Investasi US$100 juta yang mereka raih dari Sequoia dan Softbank pada 2014 berhasil menorehkan sejarah dalam peta *startup* di Indonesia.

RYBENKA.com

rybenka
L PENDANAAN
$5 juta

ENDANAAN : SERI-B
RI : E-COMMERCE

commerce khusus
ini didanai oleh Gree
s.

8 SCOOP

Scoop
TOTAL PENDANAAN
US$3.21 juta

TAHAP PENDANAAN : SERI-B
KATEGORI : MEDIA

Aplikasi pembaca e-book dan majalah ini didirikan oleh Willson Cuaca yang juga menjabat sebagai *managing partner* di East Ventures.

9 ralali.com
Industrial Online Store

Ralali
TOTAL PENDANAAN
US$2.5 juta

TAHAP PENDANAAN: SERI-A
KATEGORI : MARKETPLACE & PLATFORM

Ralali merupakan toko *online* yang menyediakan kebutuhan dan perlengkapan industri.

2 BHINNEKA.COM
INDONESIA'S NO.1 ONLINE STORE

Bhinneka
TOTAL PENDANAAN
US$22 juta

TAHAP PENDANAAN : TAHAP AKHIR
KATEGORI : E-COMMERCE

3 Orami

Orami
TOTAL PENDANAAN
US$15 juta

TAHAP PENDANAAN: TAK DIPUBLIKASI
KATEGORI : E-COMMERCE

10 fabelio

Fabelio
TOTAL PENDANAAN
US$2.5 juta

TAHAP PENDANAAN : SERI-A
KATEGORI: E-COMMERCE

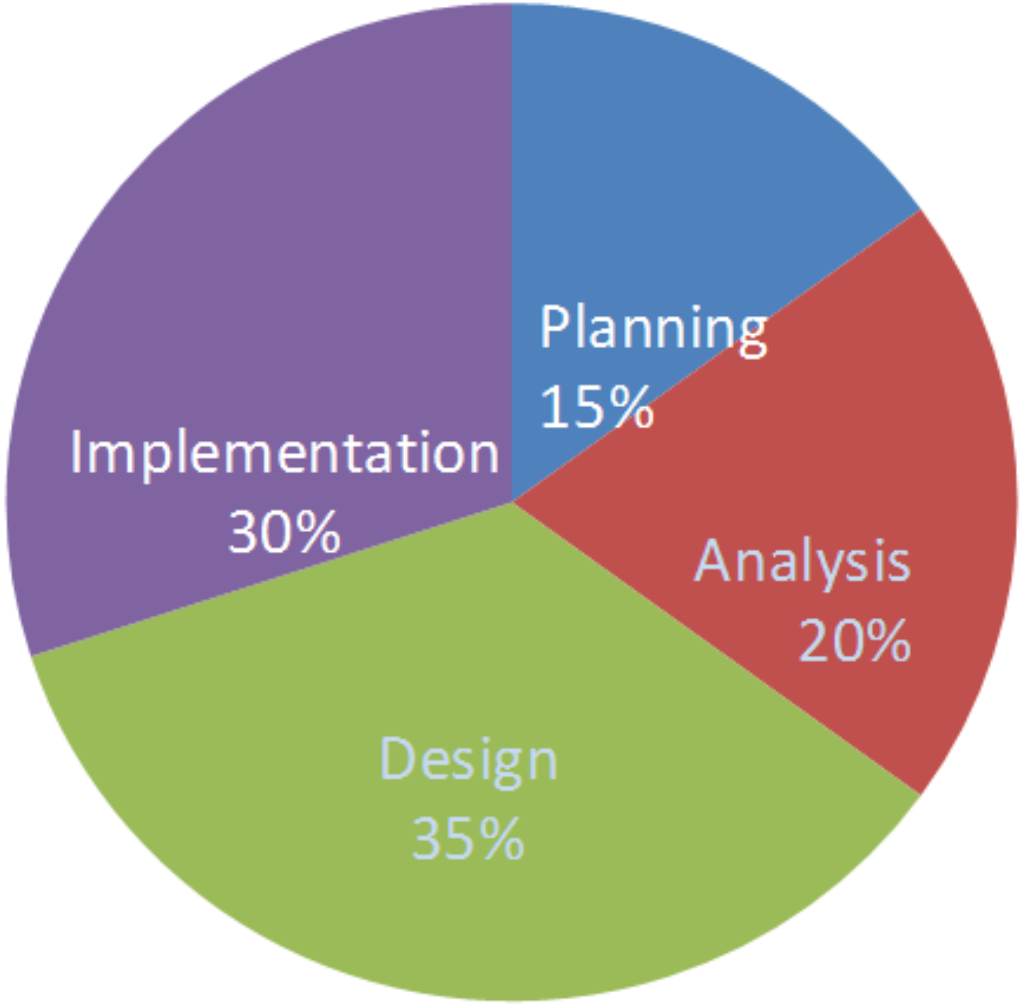
Jika kamu sedang mencari meja

11 Bizzy
EVERYTHING FOR BUSINESS

Bizzy
TOTAL PENDANAAN
US$2.5 juta

TAHAP PENDANAAN : TAHAP AWAL
KATEGORI : MARKETPLACE & PLATFORM

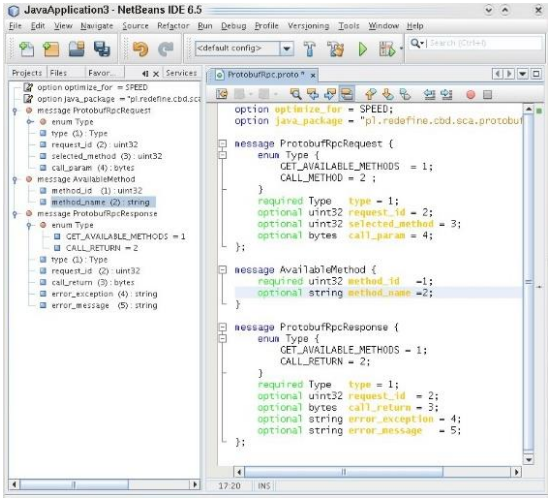
Distribusi Effort Pengembangan Software



(Dennis et al., 2013)

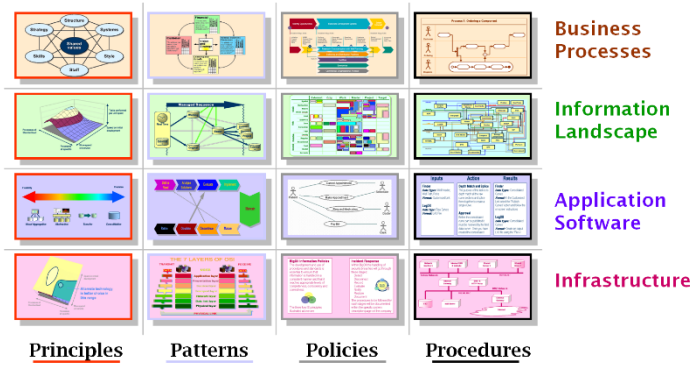
Software Development Evolution

1. How to Write a Code (Coder or Programmer)



2. How to Develop a Software (Software Engineer)

3. How to Manage Software (Enterprise Architect)



Software Engineering Law

Architecture wins over technology

(Morris-Ferguson Law)

Hierarchical structures reduce complexity

(Simon Law)

Business Model Canvas

Fasilkom UNSRI

Key Partners

- Universitas dan Unit Kerja Dibawahnya
- Alumni
- Industry
- DIKTI
- BAN-PT
- ISP
- Universitas Lainya
- Pemda

Key Activities

- Pengajaran dan Pendidikan
- Penunjang
- Penelitian
- Pengabdian kepada Masyarakat

Key Resources

- Kurikulum
- Dosen
- Pegawai
- Mahasiswa
- Laboratorium Riset dan Lab Praktikum
- Prodi
- Sarana dan Prasarana

Value Propositions

- Kurikulum Internasional Standar ACM
- Integrasi Kurikulum dengan Sertifikasi Internasional
- Mahasiswa Terseleksi dengan Ketat
- Memiliki Jurnal Internasional Terakreditasi DIKTI
- Kerjasama Program dengan Universitas Luar Negeri

Customer Relationships

- Promosi ke Stakeholders
- Tracer Study Alumni
- Seminar, Workshop dan Pelatihan

Channels

- Email
- Telepon
- Website
- Fax
- Surat Kabar
- Social Media (Facebook, Twitter)

Customer Segments

- Siswa SMA/SMK
- Mahasiswa S1
- Guru Sekolah Menengah

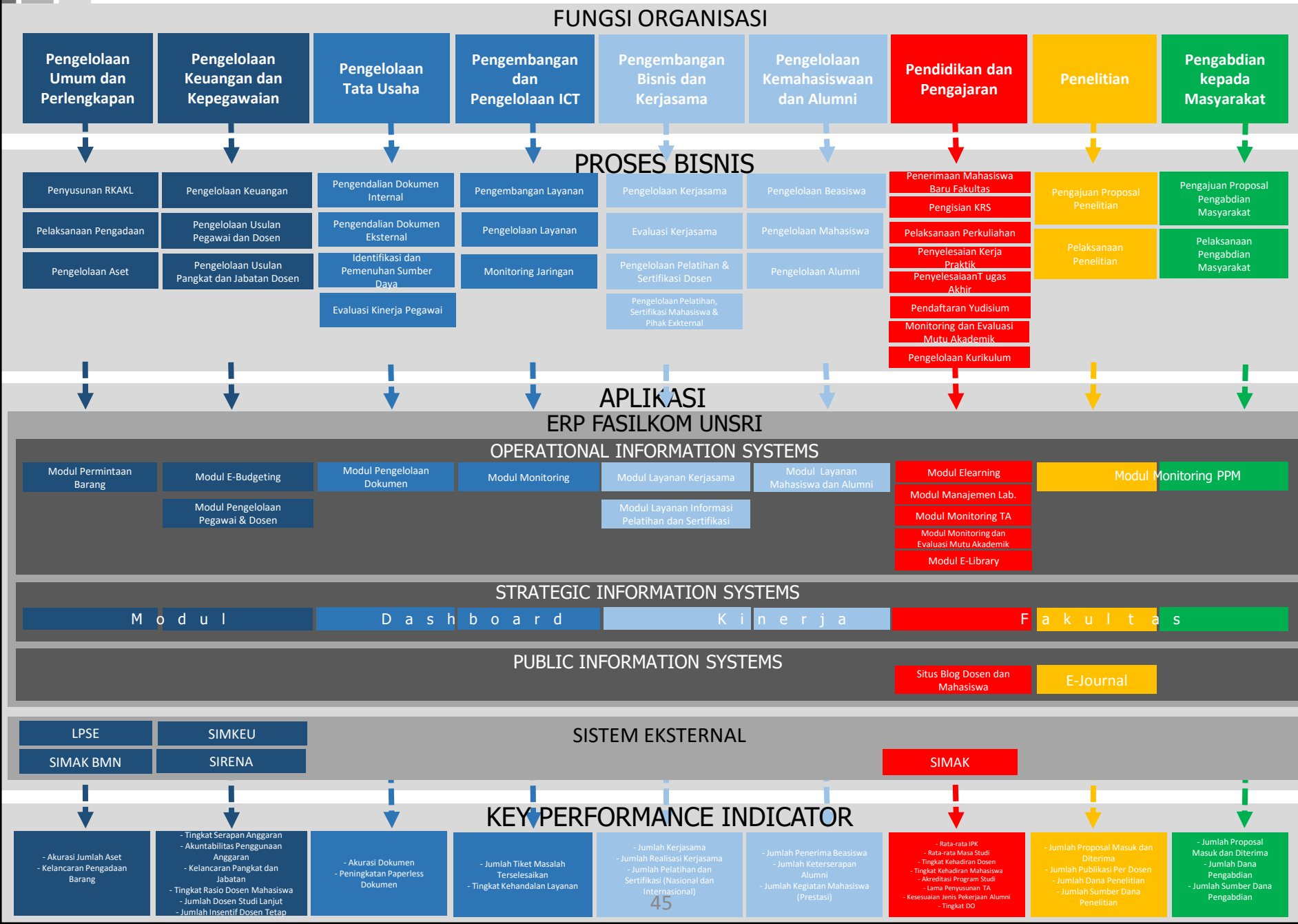
Cost Structure

- Honor Pegawai kontrak
- Honor Penelitian dan Pengabdian Dosen
- Biaya Promosi
- Pembangunan Infrastruktur
- Biaya Operasional
- Biaya Pengembangan SDM
- Pembiayaan Hibah Penelitian dan Pengabdian

Revenue Streams

- Hibah Penelitian dan Pengabdian
- Proyek Kerjasama
- BOPTN
- Hibah (CSR)
- SPP (PNBP)
- APBN

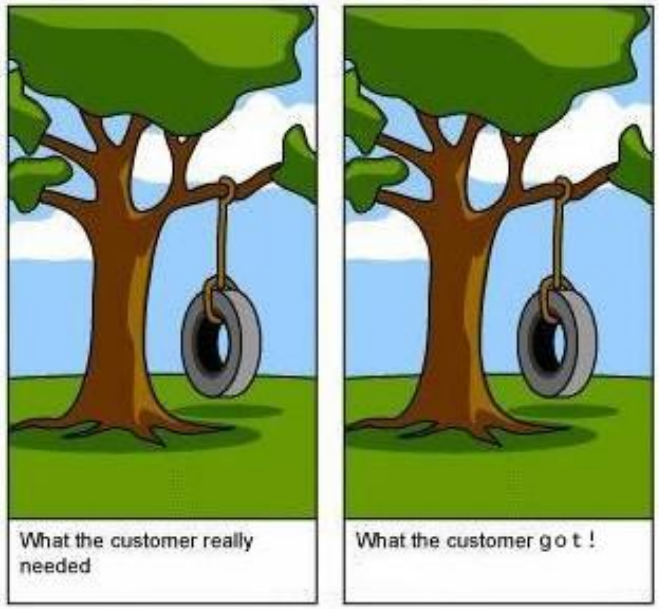
Arsitektur Aplikasi Organisasi



Kualitas Software

Software quality is *(IEEE, 1991)*:

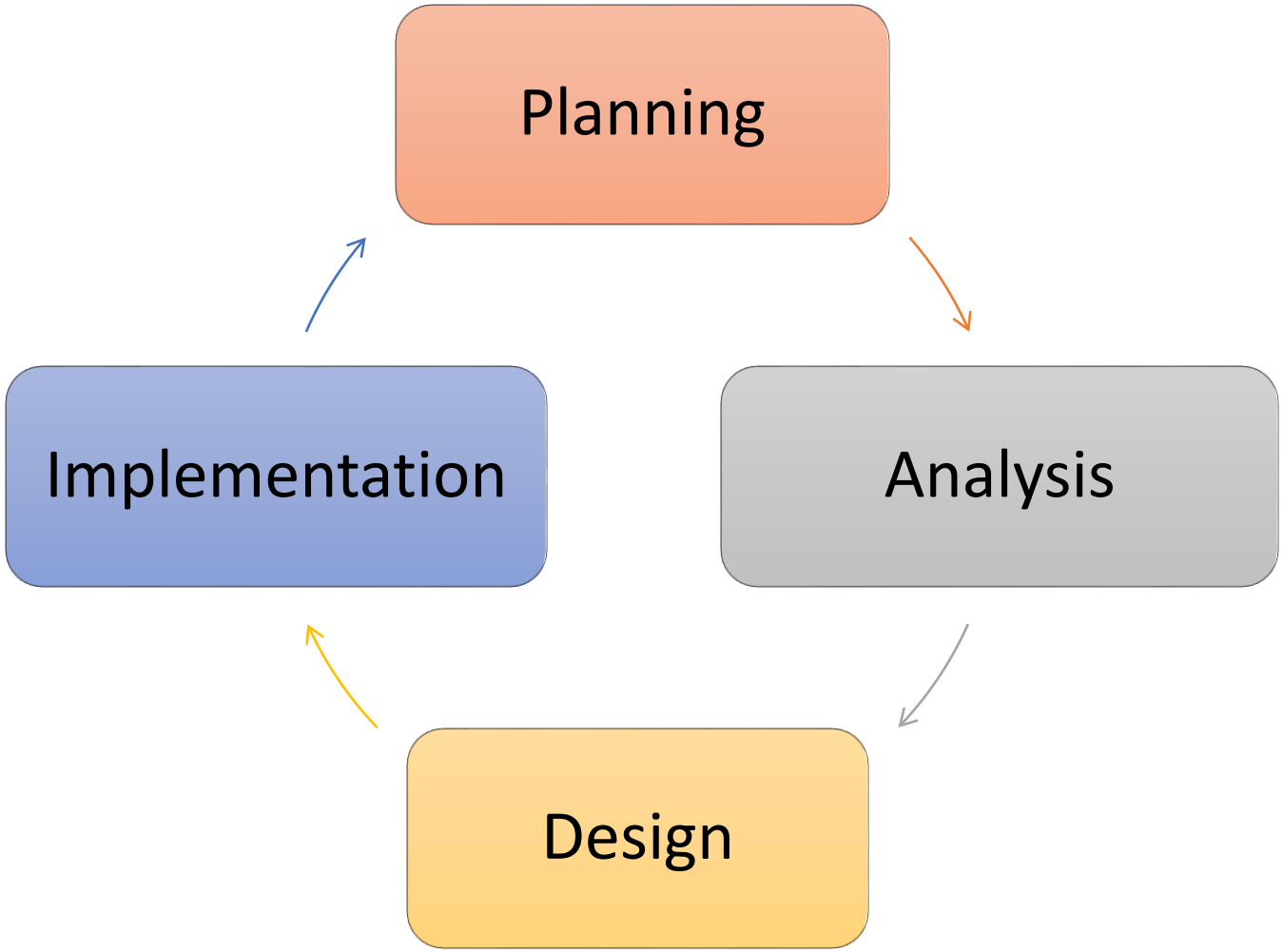
1. The degree to which a system, component, or process meets specified requirements
2. The degree to which a system, component, or process meets customer expectation or user needs (benefits)



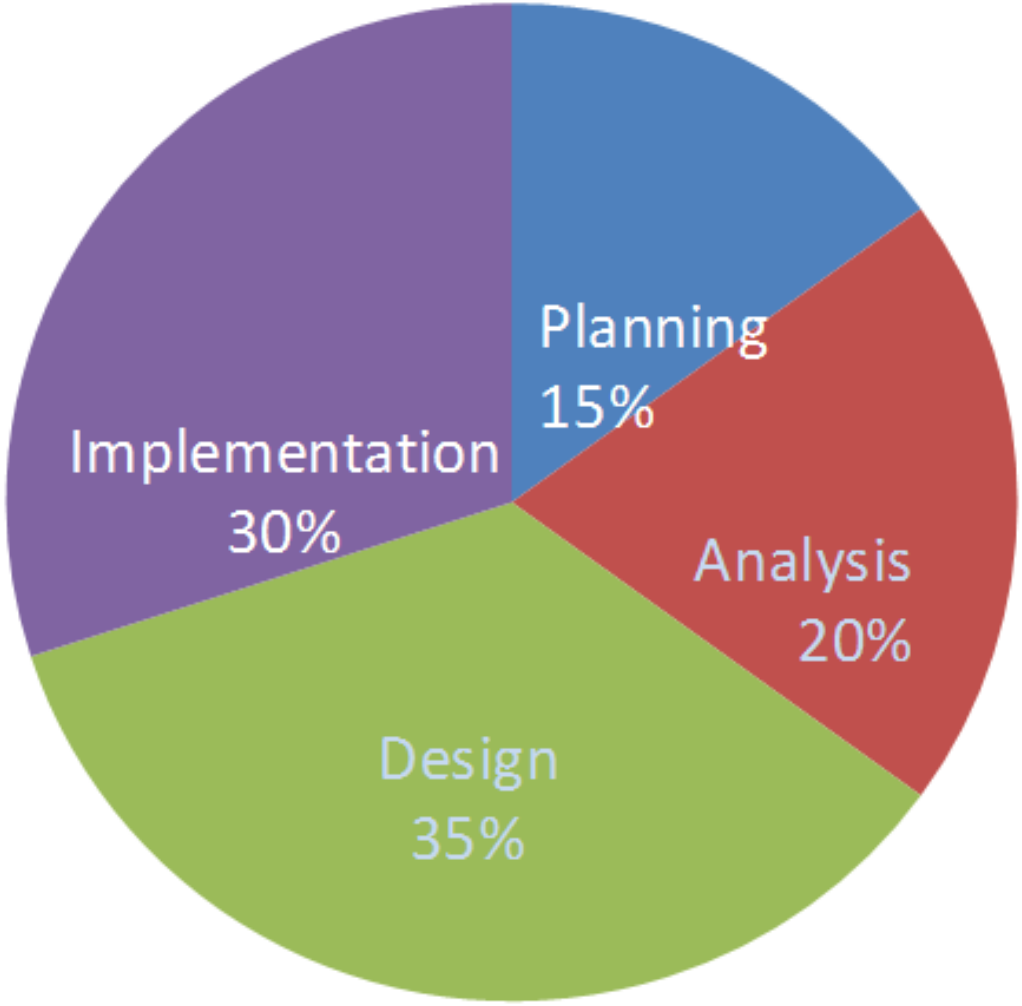
MITOS 3

Divisi IT Harus Memikirkan Semua Ide dan Kebutuhan Perusahaan

Tahapan Pengembangan Software

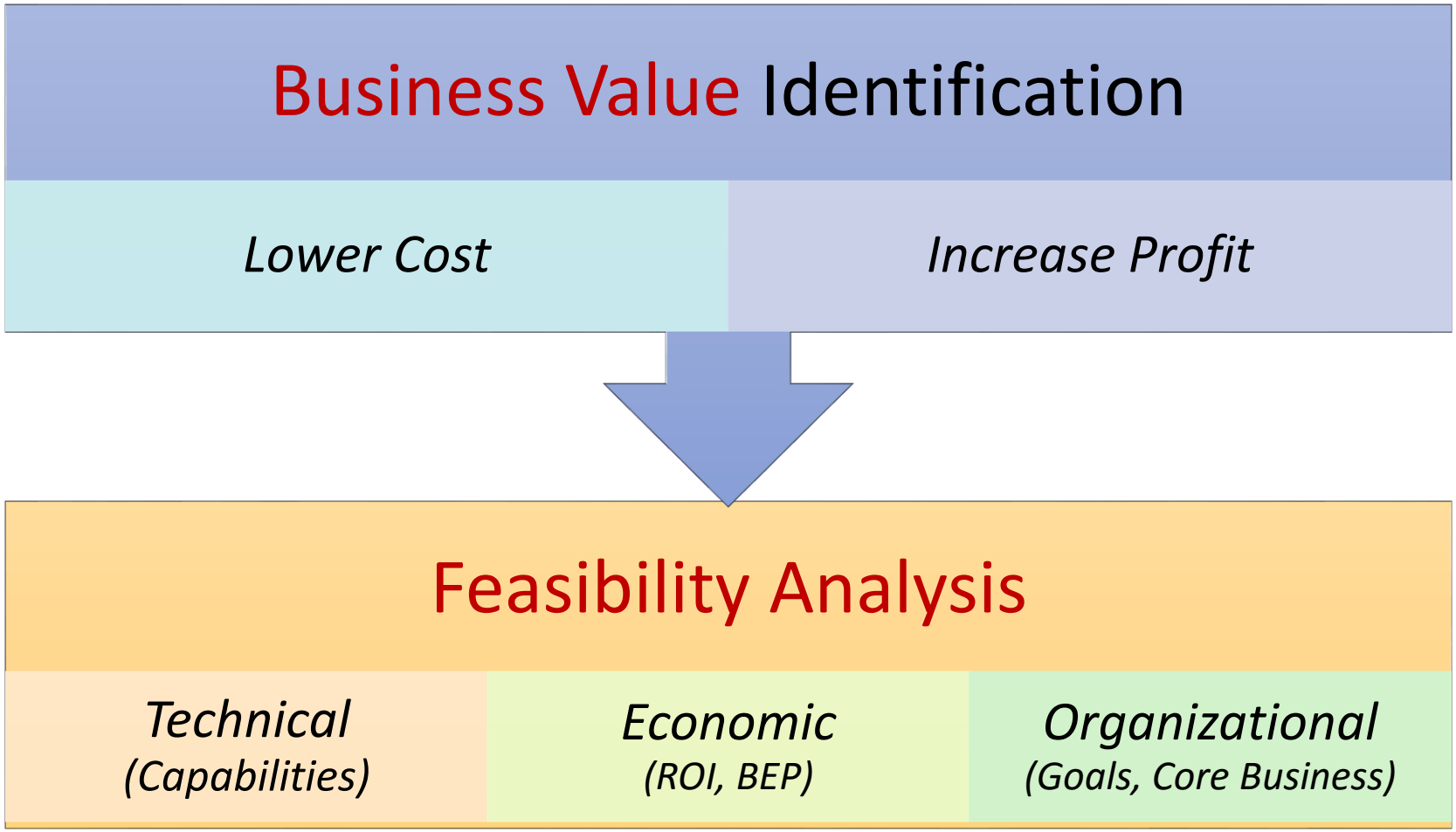


Distribusi Effort Pengembangan Software



(Dennis et al., 2013)

Planning


Business Value Identification
Lower Cost
Increase Profit
Feasibility Analysis
Technical
(Capabilities)
Economic
(ROI, BEP)
Organizational
(Goals, Core Business)

System Request – Online ATM System

Project Sponsor:	Margaret Mooney, Vice President of Marketing
Business Need:	Project ini dibuat dengan tujuan untuk mendapatkan pelanggan baru yang menggunakan Internet dam memberikan layanan yang lebih baik ke pelanggan yang ada melalui layanan berbasis Internet

Business Requirements:

Dengan menggunakan Online ATM System, pelanggan dapat melakukan seluruh transaksi perbankan. Fitur utama yang ada pada sistem ini adalah:

1. Pengecekan Saldo
2. Pengiriman Uang
3. Transaksi Pembayaran Tagihan

Business Value:

Keuntungan Intangible:

- Meningkatkan layanan ke pelanggan
- Mengurangi komplen dari pelanggan

Keuntungan Tangible:

- $750,000 transaksi keuangan dari pelangan baru
- $1,875,000 transaksi keuangan dari pelanggan lama
- $50,000 pengurangan biaya telepon untuk melayani pelanggan

Feasibility Analysis - Online ATM System

Margaret Mooney and Alec Adams created the following feasibility analysis for the Online ATM System Project.

1. Technical Feasibility

The Online ATM System is feasible technically, although there is some risk.

1.1 Online ATM System's risk regarding familiarity with the application is high

- The Marketing Department has little experience with Internet-based marketing and sales
- The IT Department has strong knowledge of the company's existing ATM systems, however, it has not worked with Web-enabled ATM systems.

1.2 Online ATM System's risk regarding familiarity with the technology is medium

- The IT Department has relied on external consultants to develop its existing Web env.
- The IT Department has learned about Web technology by maintaining the corporate site

1.3 The project size is considered medium risk

- The project team likely will include less than ten people
- Business user involvement will be required
- The project timeframe cannot exceed a year and it should be much shorter

1.4 The compatibility with existing technical infrastructure should be good

- The current ATM System is a client-server system built using open standards. An interface with the Web should be possible
- Retail bank already place and maintain orders electronically
- An Internet infrastructure already is in place at retail bank and at the corporate headquarters

2. Economic Feasibility

- A cost–benefit analysis was performed. A conservative approach shows that the Online ATM System has a good chance of adding to the bottom line of the company significantly.
  - Return on Investment (ROI) over 3 years: 229 percent
  - Break-even point (BEP) occurs: after 1.7 years
  - Total benefit after three years: $3.5 million

- Intangible Costs and Benefits
  - Improved customer satisfaction
  - Greater brand recognition

3. Organizational Feasibility

- From an organizational perspective, this project has low risk. The objective of the system, which is to increase sales, is aligned well with the senior management's goal of increasing sales for the company. The move to the Internet also aligns with Marketing's goal to become more savvy in Internet marketing and sales.
- The project has a project champion, Margaret Mooney, Vice President of Marketing. Margaret is well positioned to sponsor this project and to educate the rest of the senior management team when necessary. Much of senior management is aware of and supports the initiative.

	2003	2004	2005	Total
Increased sales from new customers	0	750,000	772,500	
Increased sales from existing customers	0	1,875,000	1,931,250	
Reduction in customer complaint calls	0	50,000	50,000	
Total Benefits:	**0**	**2,675,000**	**2,753,750**	
PV of Benefits:	**0**	**2,521,444**	**2,520,071**	**5,041,515**
PV of All Benefits:	**0**	**2,521,444**	**5,041,515**	
Labor: Analysis, Design and Implementation	162,000	0	0	
Consultant Fees	50,000	0	0	
Office Space and Equipment	7,000	0	0	
Software and Hardware	35,000	0	0	
Total Development Costs:	**254,000**	**0**	**0**	
Labor: Webmaster	85,000	87,550	90,177	
Labor: Network Technician	60,000	61,800	63,654	
Labor: Computer Operations	50,000	51,500	53,045	
Labor: Business Manager	60,000	61,800	63,654	
Labor: Assistant Manager	45,000	46,350	47,741	
Labor: 3 Staff	90,000	92,700	95,481	
Software upgrades and licenses	4,000	1,000	1,000	
Hardware upgrades	5,000	3,000	3,000	
User training	2,000	1,000	1,000	
Communications charges	20,000	20,000	20,000	
Marketing expenses	25,000	25,000	25,000	
Total Operational Costs:	**446,000**	**452,700**	**464,751**	
Total Costs:	**700,000**	**452,700**	**464,751**	
PV of Costs:	**679,612**	**426,713**	**425,313**	**1,531,638**
PV of all Costs:	**679,612**	**1,106,325**	**1,531,638**	
Total Project Costs Less Benefits:	**(700,000)**	**2,222,300**	**2,288,999**	
Yearly NPV:	**(679,612)**	**2,094,731**	**2,094,758**	**3,509,878**
Cumulative NPV:	**(679,612)**	**1,415,119**	**3,509,878**	
Return on Investment (ROI):	**229.16%**	**(3,509,878/1,531,638)**		
Break-even Point (BEP):	**1.32 years**	**(BEP in Year 2 = [2,094,731 – 1,415,119] / 2,094,731 = 0.32)**		

MITOS 4

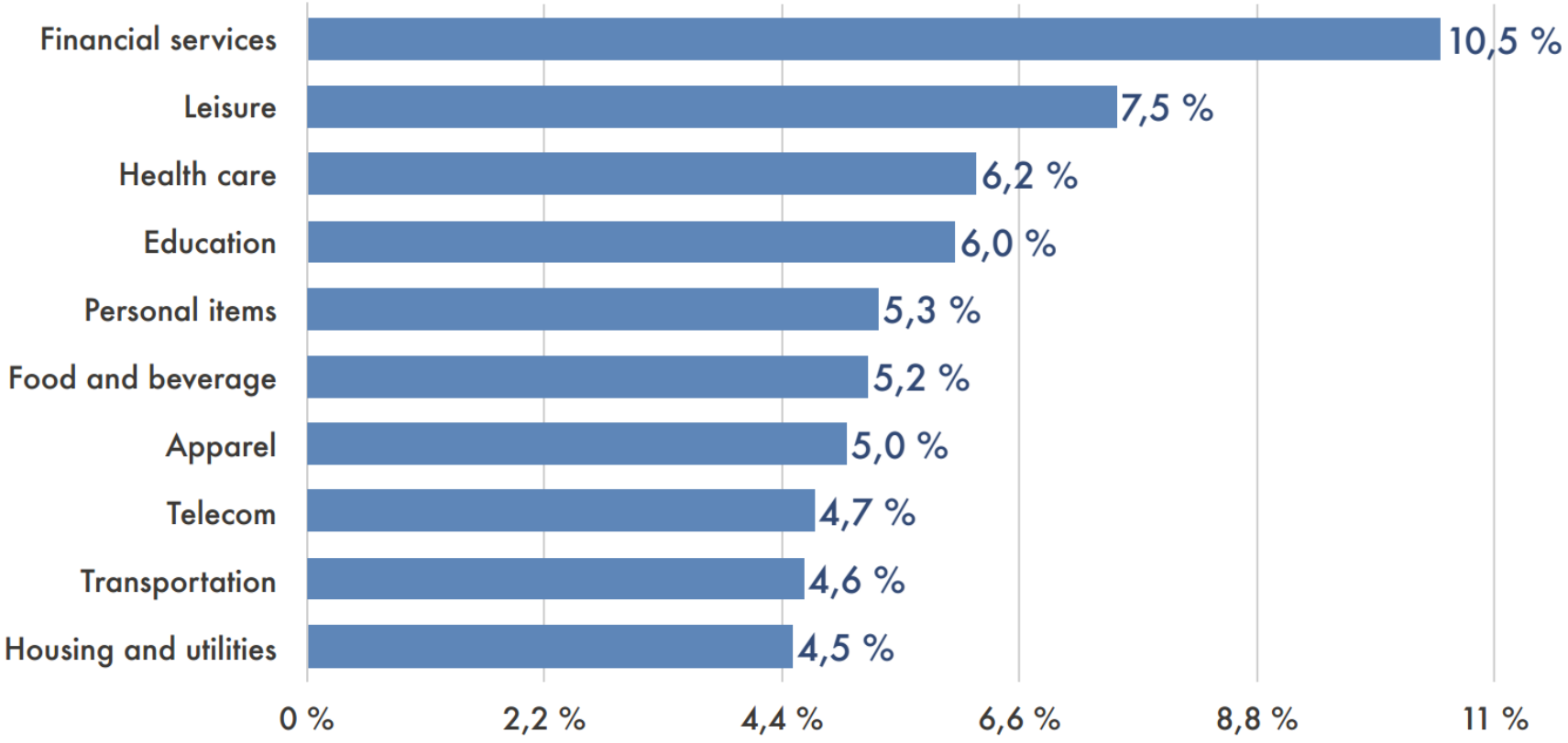
Saya akan Membuat Aplikasi IT Seperti yang ada Sekarang

Kejar Ceruk Pasar Baru

- Don't Reinvent The Wheel!
- Jangan pernah membuat aplikasi yang sama saja dengan yang ada saat ini

- Lakukan komparasi terhadap aplikasi sejenis, lihat dimana ada gap dan ceruk pasar yang belum tergarap
- Buat aplikasi untuk segmen pasar baru dan diprediksi akan tumbuh besar

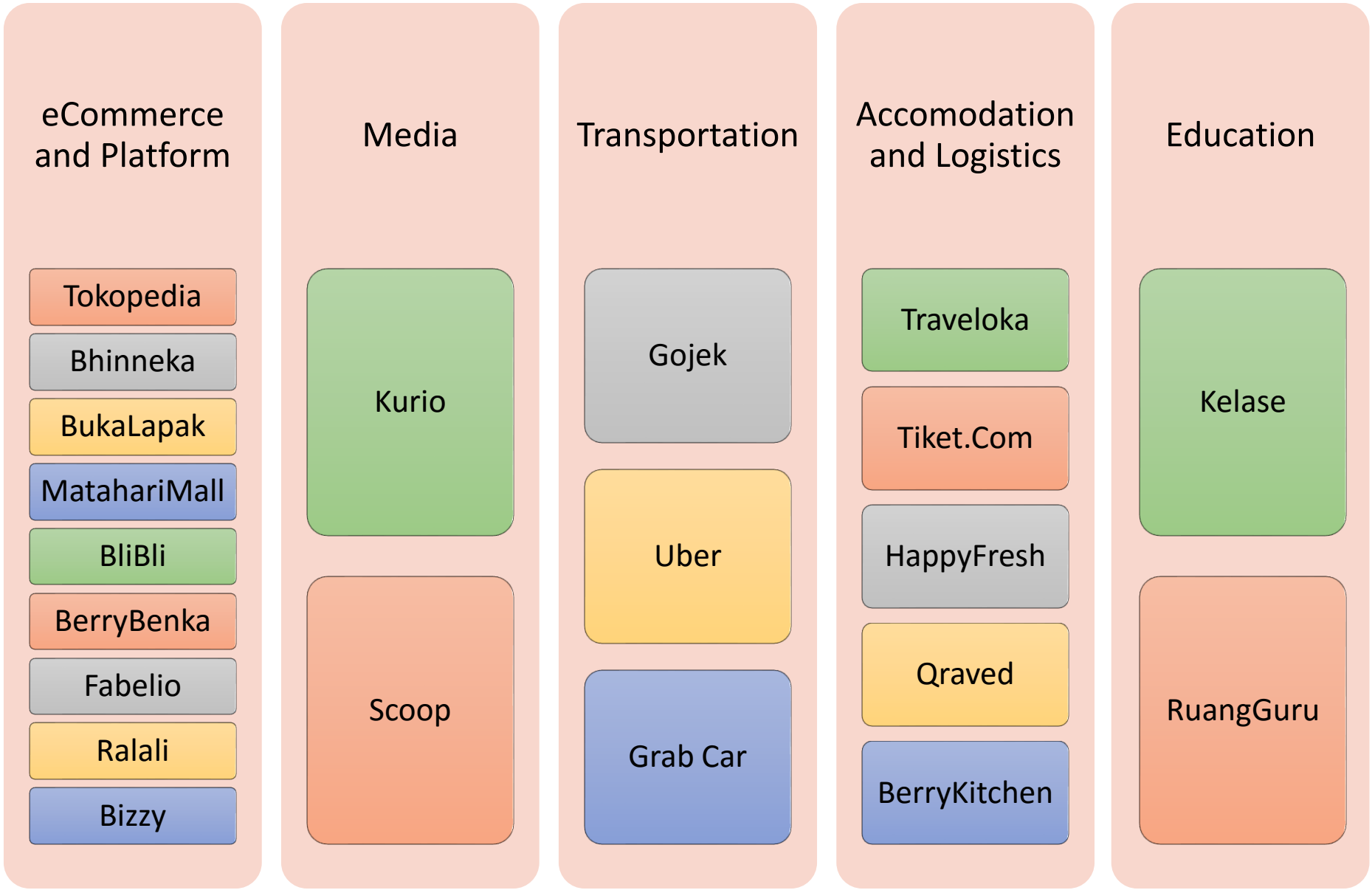
Consumer Spending



RAPID URBANIZATION, RISING INCOME LEVELS, FAVORABLE DEMOGRAPHIC PATTERNS AND CHANGING LIFESTYLE TRENDS ARE JUST SOME OF THE FACTORS THAT ARE BOOSTING CONSUMER SPENDING IN INDONESIA

Source: McKinsey 2013

Indonesia Software Innovation Maps

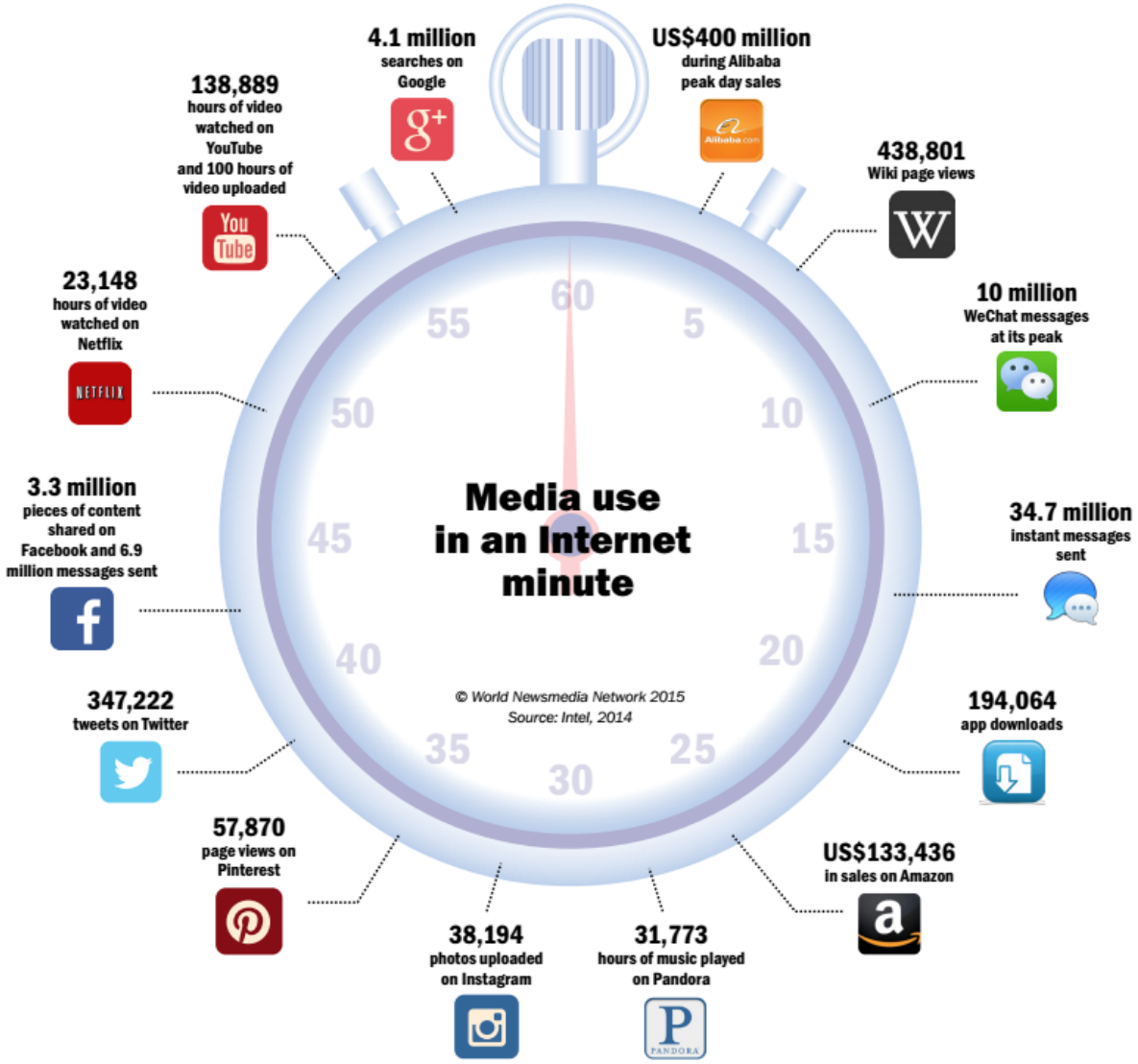


Evolution of Sciences

- Before 1600: Empirical science
- 1600-1950s: Theoretical science
  - Each discipline has grown a *theoretical* component
  - Theoretical models motivate experiments and generalize understanding
- 1950s-1990s: Computational science
  - Most disciplines have grown a third, *computational* branch (e.g. empirical, theoretical, and computational ecology, or physics, or linguistics.)
  - Computational Science traditionally meant simulation. It grew out of our inability to find closed-form solutions for complex mathematical models
- 1990-now: Data science
  - The flood of data from new scientific instruments and simulations
  - The ability to economically store and manage petabytes of data online
  - The Internet makes all these archives universally accessible
  - Data mining is a major new challenge!

Jim Gray and Alex Szalay, The World Wide Telescope: An Archetype for Online Science, Comm. ACM, 45(11): 50-54, Nov. 2002

Perubahan Kultur dan Perilaku



Insight, Big Data Trends for Media, 2015)

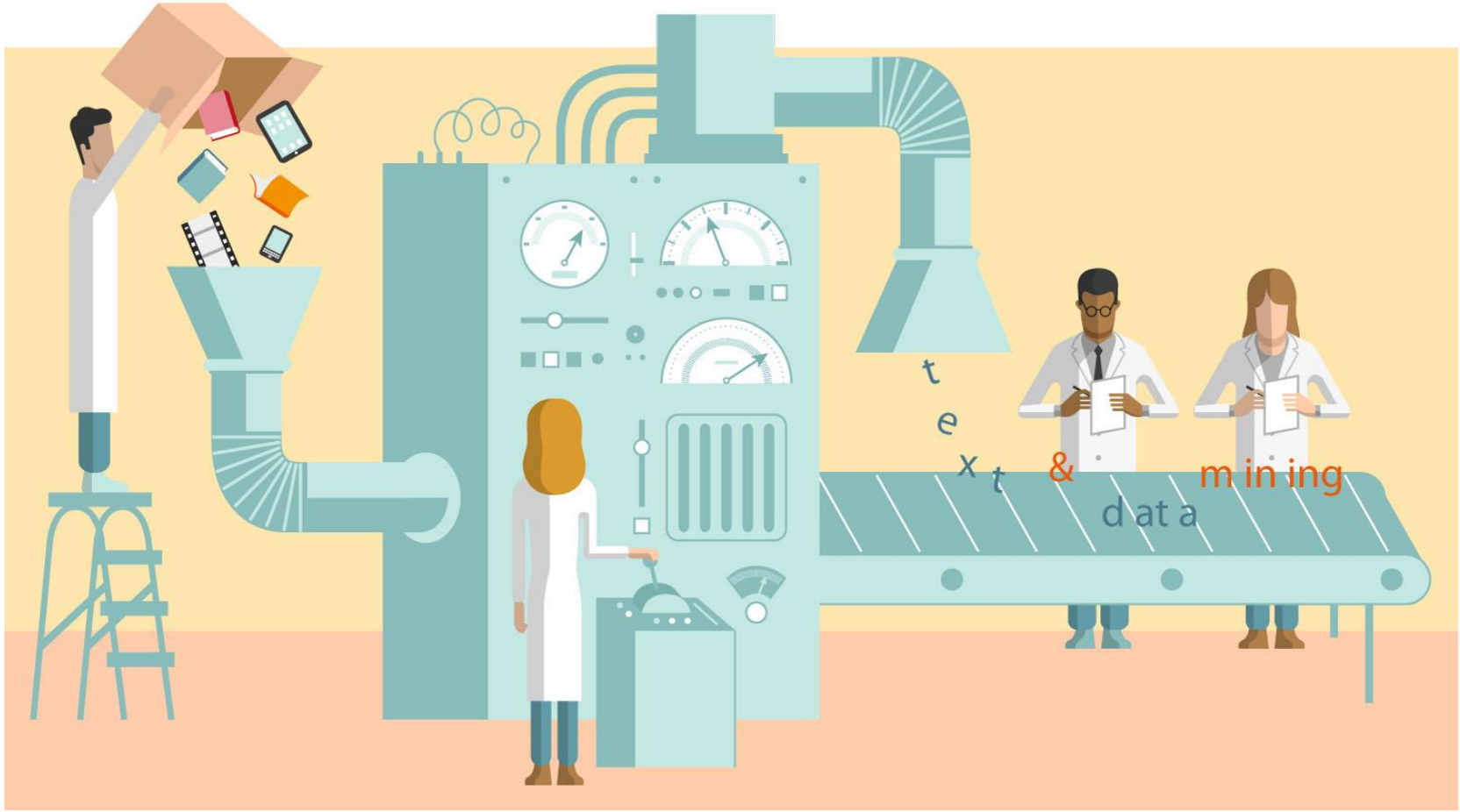
Datangnya Tsunami Data

kilobyte (**kB**)	10^3
megabyte (**MB**)	10^6
gigabyte (**GB**)	10^9
terabyte (**TB**)	10^{12}
petabyte (**PB**)	10^{15}
exabyte (**EB**)	10^{18}
zettabyte (**ZB**)	10^{21}
yottabyte (**YB**)	10^{24}

- Mobile Electronics market
  - 5B mobile phones in use in 2010
  - 150M tablets was sold in 2012 (IDC)
  - 200M is global notebooks shipments in 2012 (Digitimes Research)

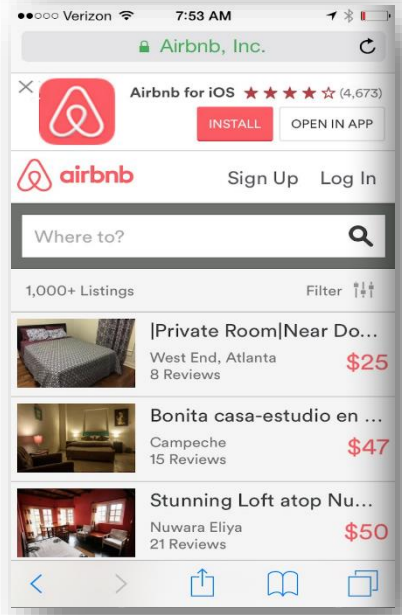
- Web and Social Networks generates amount of data
  - Google processes 100 PB per day, 3 million servers
  - Facebook has 300 PB of user data per day
  - Youtube has 1000PB video storage
  - 235 TBs data collected by the US Library of Congress
  - 15 out of 17 sectors in the US have more data stored per company than the US Library of Congress

Mining dari Data ke Pengetahuan



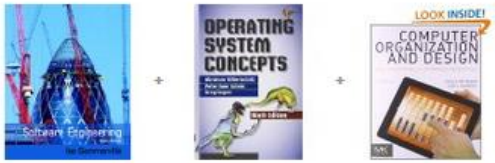
Aplikasi Berbasis Pengetahuan

- Uber - the world's largest taxi company, owns no vehicles
- Google - world's largest media/advertising company, creates no content
- Alibaba - the most valuable retailer, has no inventory
- Airbnb - the world's largest accommodation provider, owns no real estate
- Gojek - perusahaan angkutan umum, tanpa memiliki kendaraan
- Groceria – perusahaan penjual sayur dan daging di pasar, tanpa punya toko dan barang dagangan



Aturan Asosiasi di Amazon.com

Frequently Bought Together



Price for all three: $387.88

Add all three to Cart

Add all three to Wish List

Some of these items ship sooner than the others. Show details

- This item: Software Engineering (10th Edition) by Ian Sommerville Hardcover $169.67
- Operating System Concepts by Abraham Silberschatz Hardcover $144.03
- Computer Organization and Design, Fifth Edition: The Hardware/Software Interface (The Morgan Kaufmann ... by David A. Patterson Paperback $74.18

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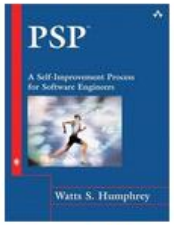

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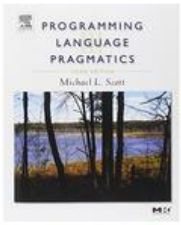

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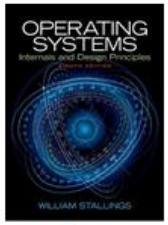

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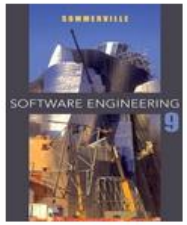

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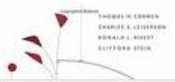
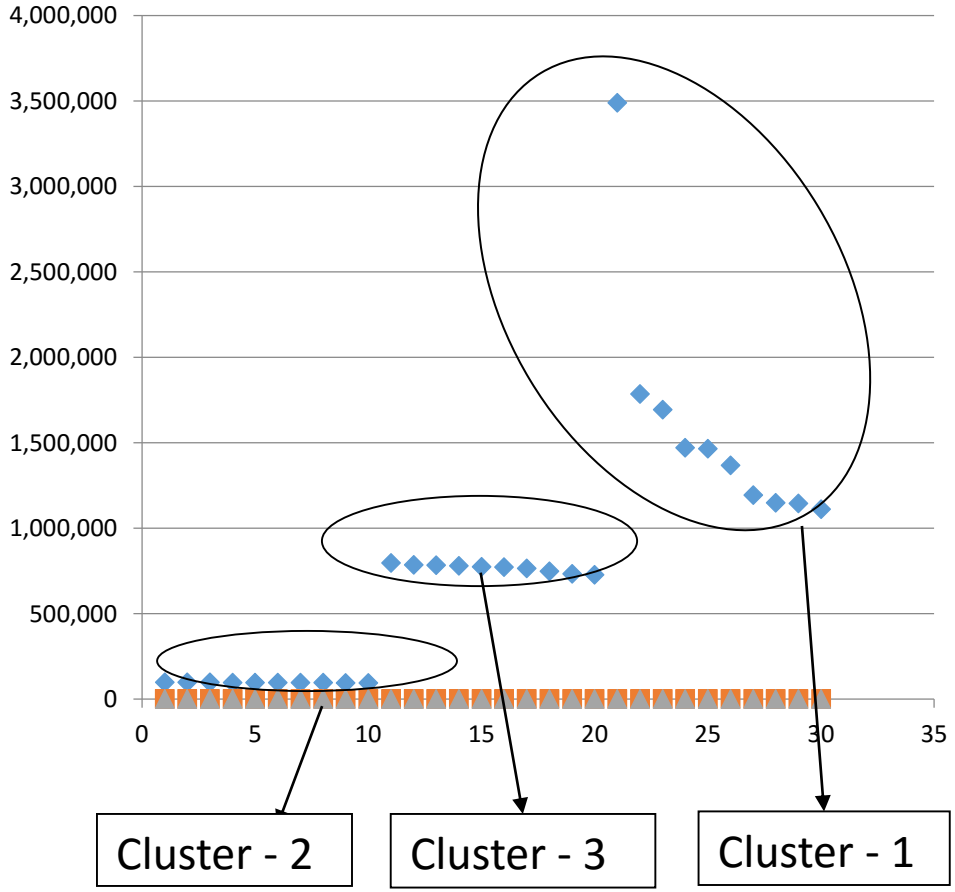
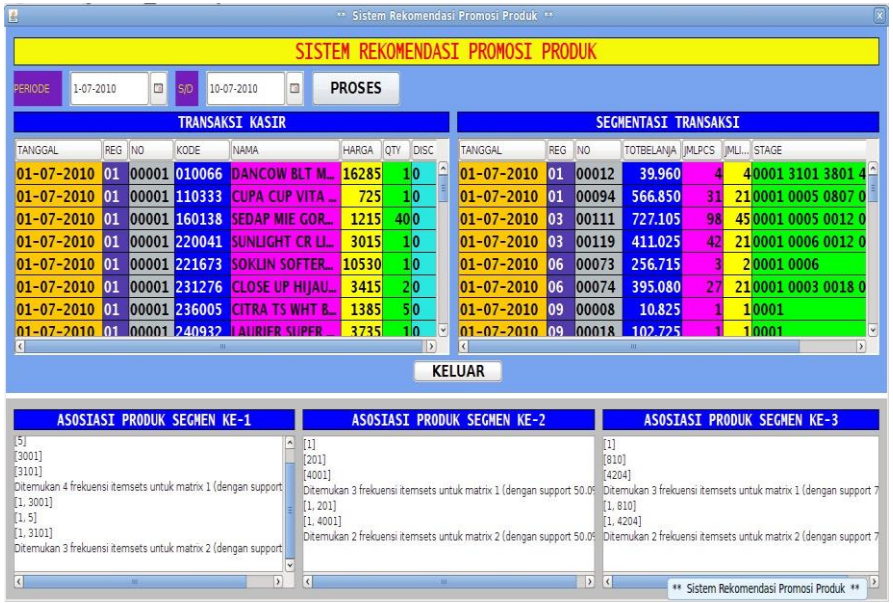


Show more

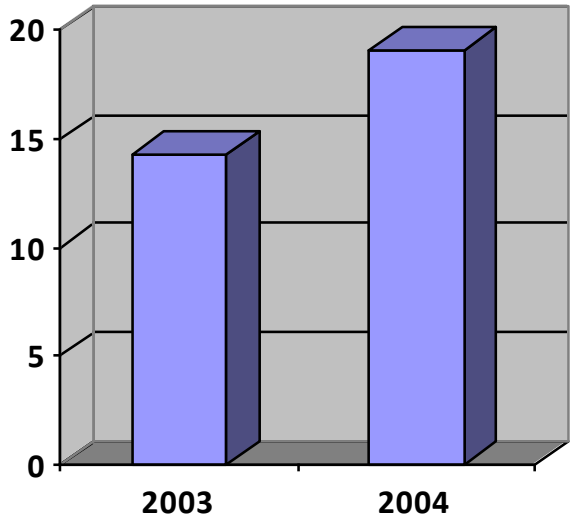
Product Recommender System

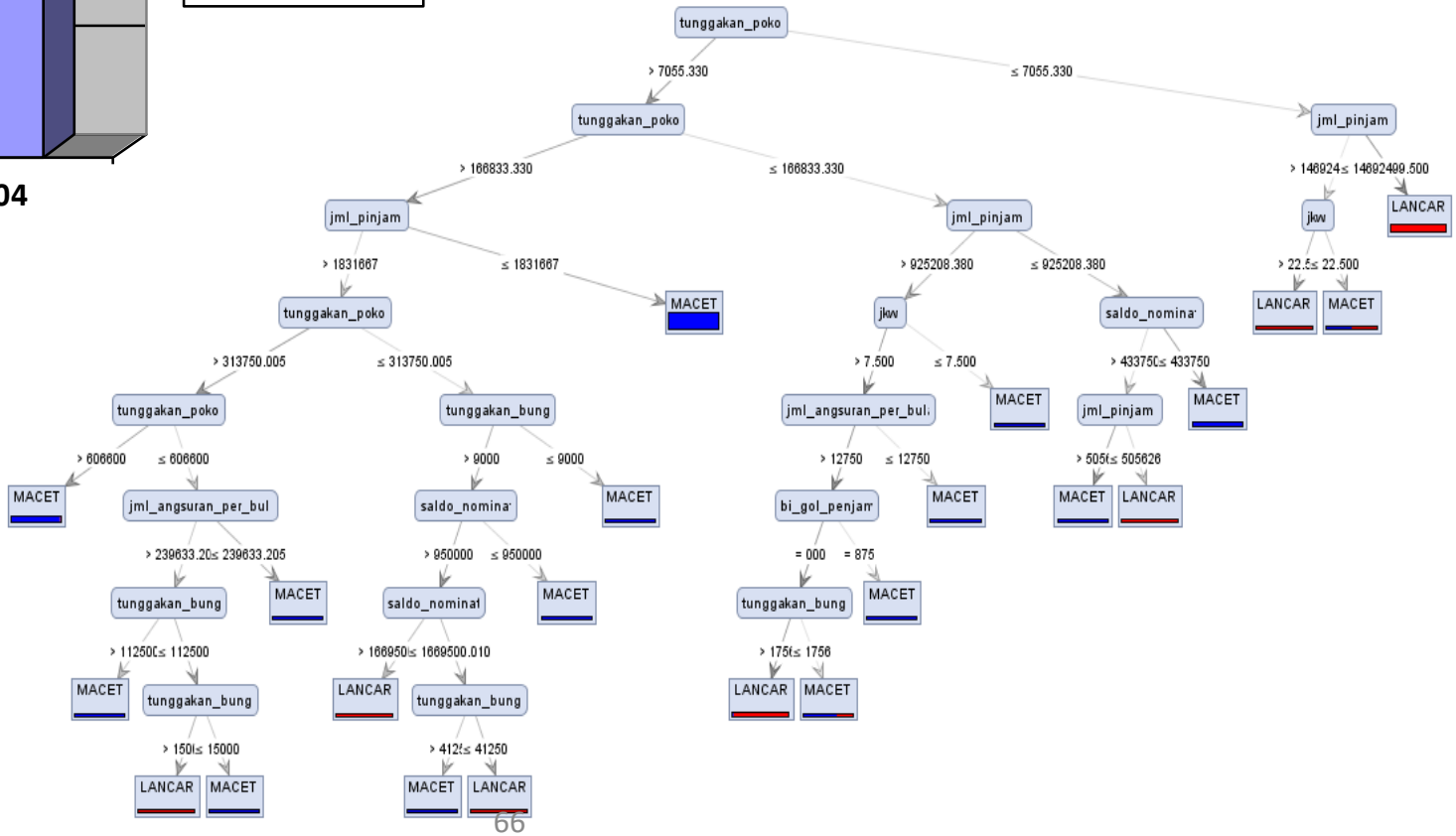


- Tot.Belanja
- Jml.Pcs
- Jml.Item



Sistem Penentuan Kelayakan Kredit

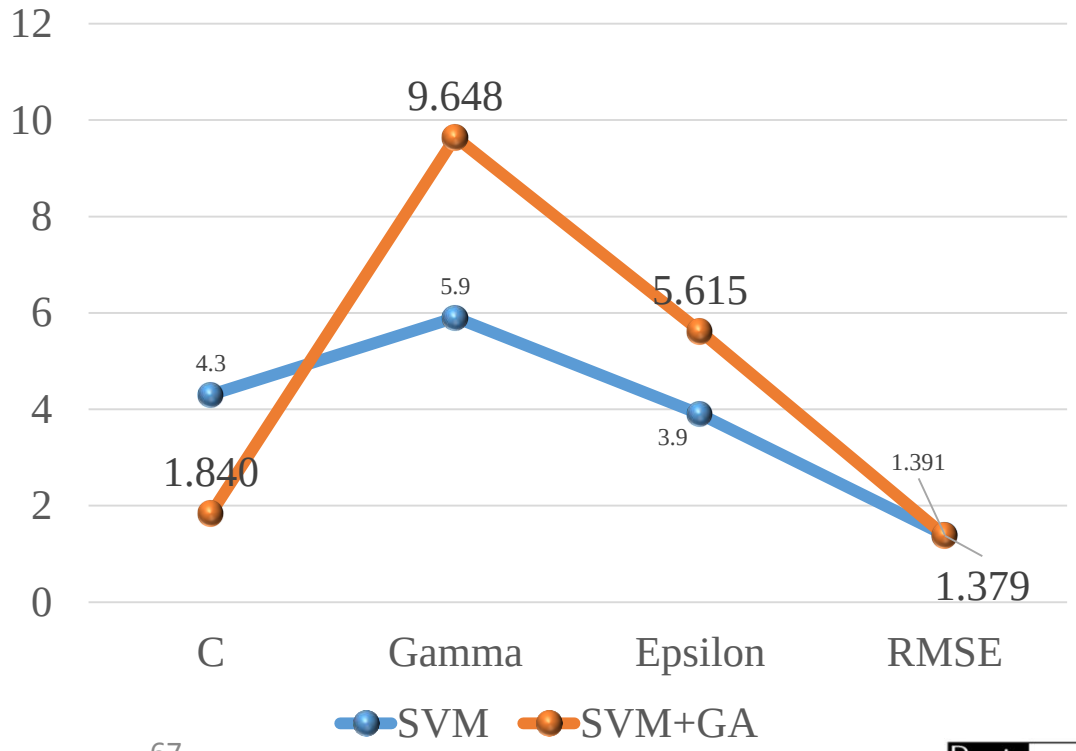




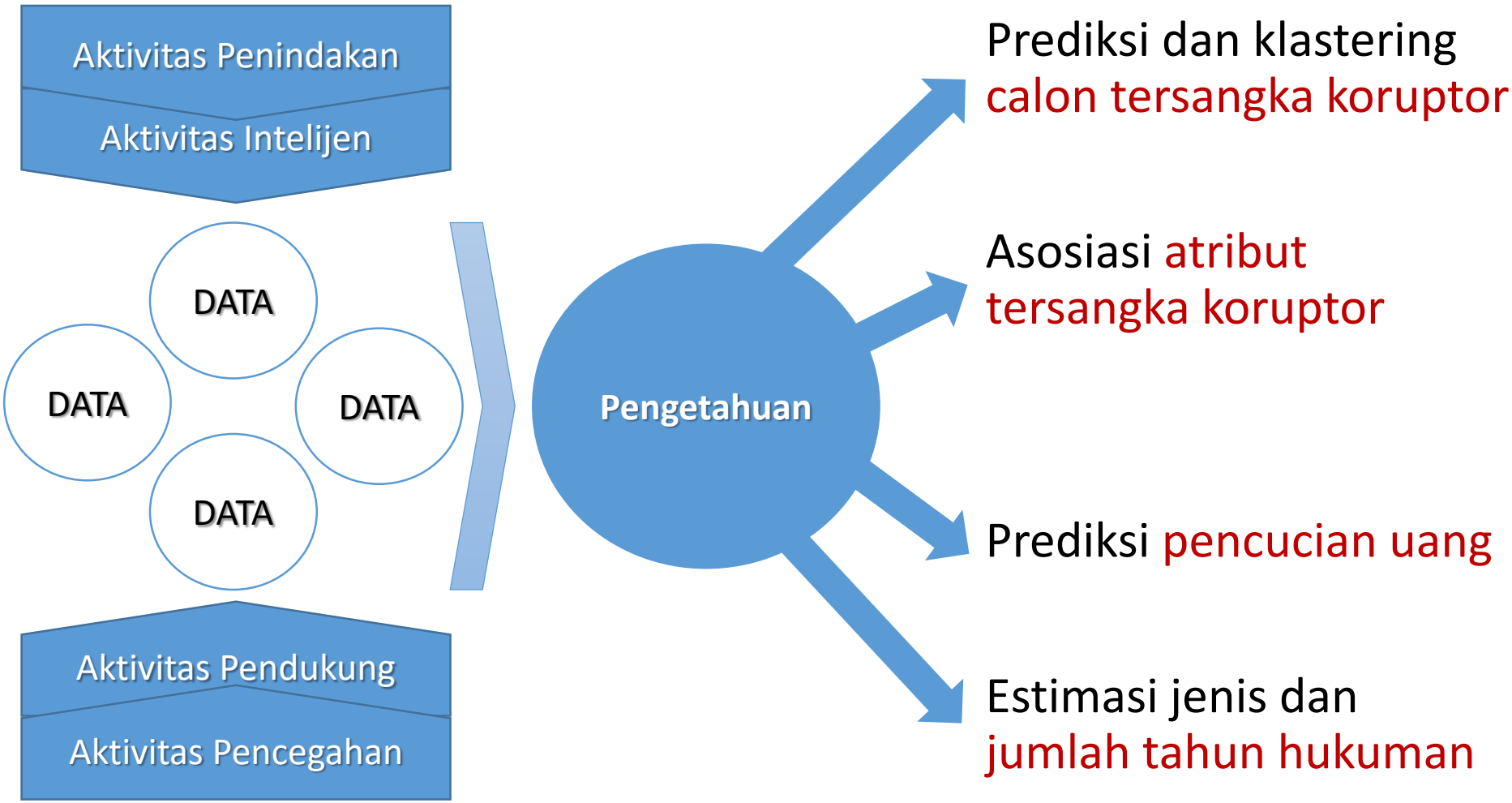
Sistem Prediksi Kebakaran Hutan

FFMC	DMC	DC	ISI	temp	RH	wind	rain	ln(area+1)
93.5	139.4	594.2	20.3	17.6	52	5.8	0	0
92.4	124.1	680.7	8.5	17.2	58	1.3	0	0
90.9	126.5	686.5	7	15.6	66	3.1	0	0
85.8	48.3	313.4	3.9	18	42	2.7	0	0.307485
91	129.5	692.6	7	21.7	38	2.2	0	0.357674
90.9	126.5	686.5	7	21.9	39	1.8	0	0.385262
95.5	99.9	513.3	13.2	23.3	31	4.5	0	0.438255

	SVM	SVM+GA
C	4.3	1,840
Gamma (γ)	5.9	9,648
Epsilon (ε)	3.9	5,615
RMSE	1.391	1.379

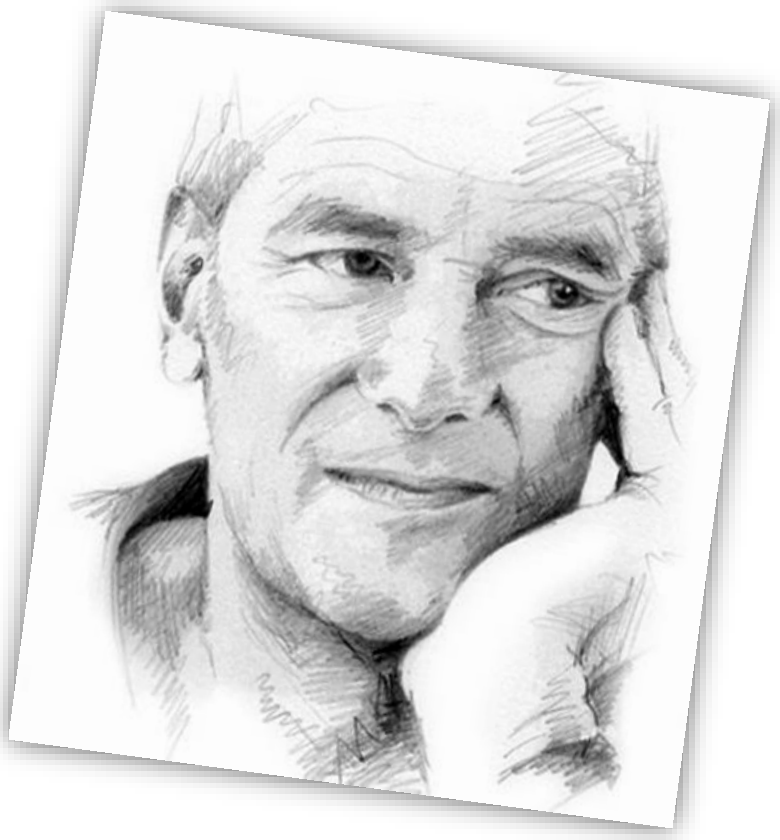


Sistem Prediksi Koruptor



MITOS 5

Nggak Suka Dunia IT, Tapi Saya Yakin Bisa Sukses Menyelesaikan Urusan IT



Saya tidak keberatan dengan **5 tahun dan 5126 kegagalan** saya dalam membuat penyedot debu *dual cyclone* tanpa kantung...

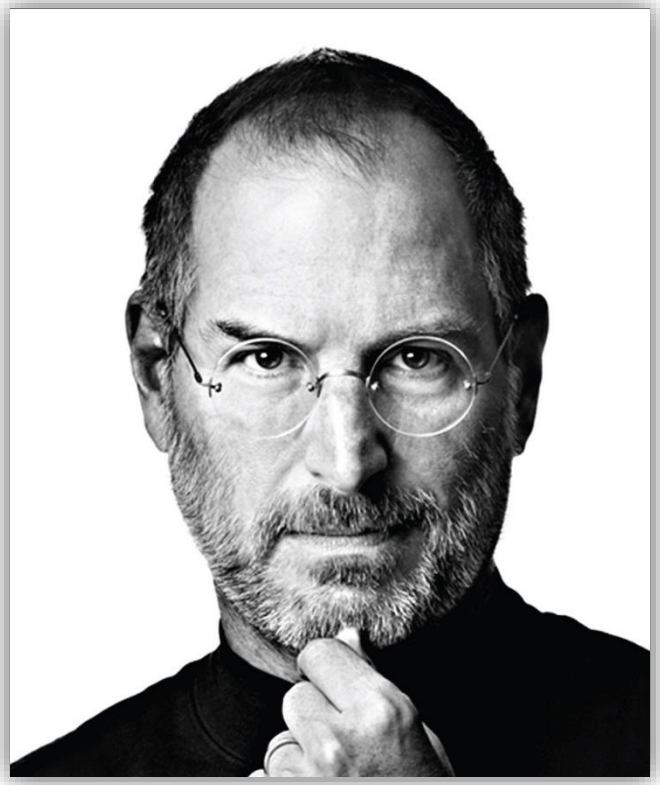
(James Dyson)

Kesalahan terbesar saya adalah mencoba membuat alat pancing, padahal **saya tidak suka memancing dan tidak pernah pergi memancing**...

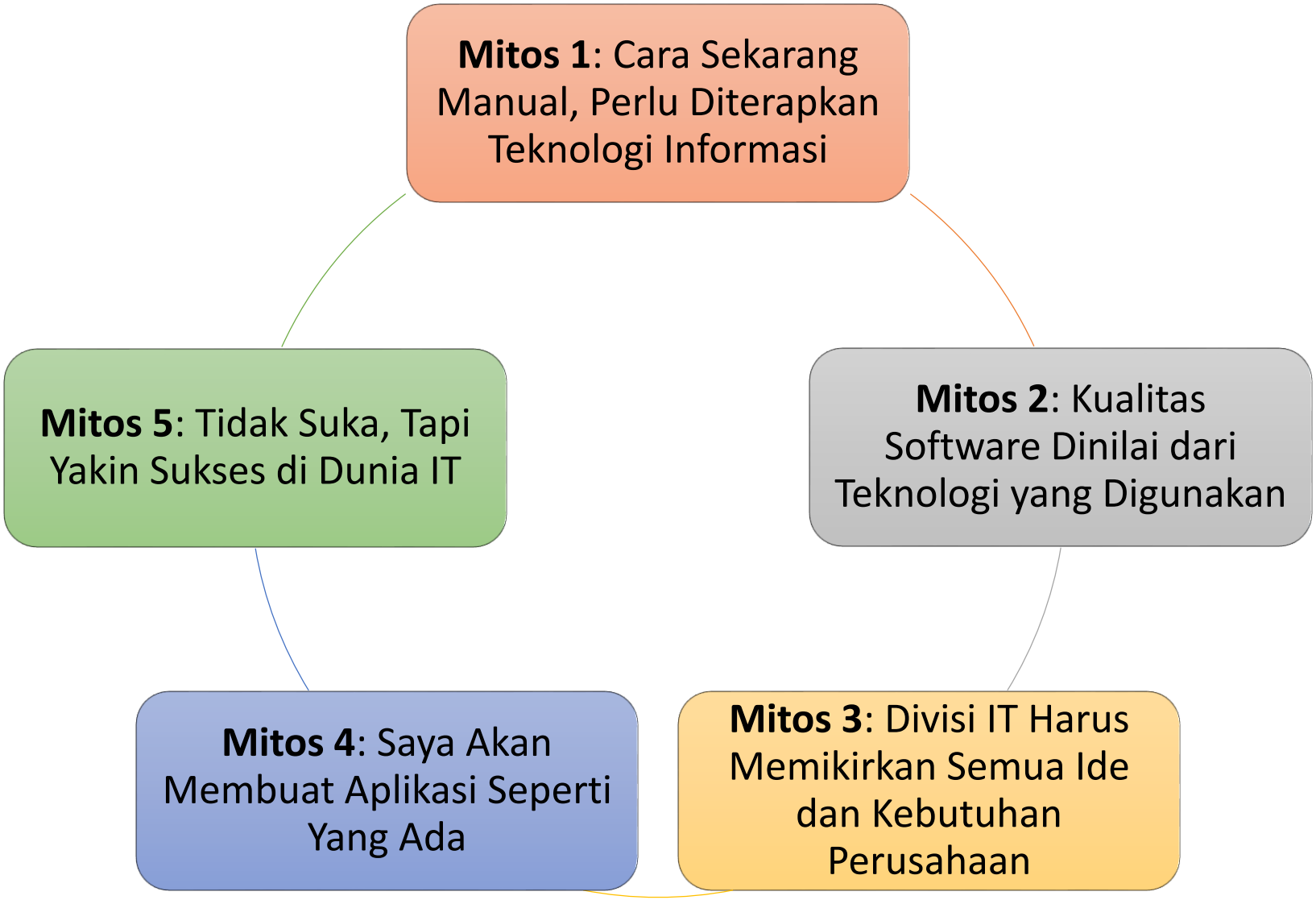
(Eli Harari)

Satu hal yang membuat saya tetap bertahan adalah bahwa saya **mencintai apa yang saya lakukan**...

(Steve Jobs)



5 Mitos Kesalahan Penerapan Teknologi Informasi



2. Pengantar Tata Kelola Teknologi Informasi

2.1 Apa dan Mengapa Tata Kelola Teknologi Informasi

2.2 Apa dan Mengapa Framework Tata Kelola Teknologi Informasi

2.1 Apa dan Mengapa Tata Kelola Teknologi Informasi

Kondisi Rumah Saya

- Luas 1000 m2
- Total penghuni 13 orang
- 1 istri, 7 anak, 3 PRT, 1 supir
- 13 kamar tidur
- 1 ruang perpustakaan
- 2 ruang keluarga
- 13 kamar mandi
- 1 kolam renang
- 1 kolam ikan dengan puluhan jenis ikan
- Taman dengan puluhan pohon dan hewan

Masalah di Rumah Saya

- Berhubungan dengan Aset dan Layanan Pendukung
  - Seluruh aset rumah, di mana posisinya, bagaimana mengontrol dan memperbaiki bila ada kerusakan
  - Bagaimana memilih pembelian aset baru
  - Apakah arsitektur rumah, besar kamar, cukup untuk mendukung kehidupan
  - Dokumen yang diproduksi seluruh penghuni
- Berhubungan dengan Kegiatan
  - Kegiatan sehari-hari, kebiasaan masing-masing penghuni rumah, dan bagaimana tahapan penyelesaian masalah
  - Bagaimana proses menguras kolam renang, membersihkan kamar tidur, kamar mandi, ruang tengah
- Berhubungan dengan Pengontrolan dan Pengukuran Kinerja
  - Bagaimana mengukur kinerja staf di rumah dan anak-anak
  - Bagaimana aset dan kegiatan mendukung prestasi anak

Rumah

=

Kantor

Kondisi di Organisasi

- Ribuan pegawai dan puluhan unit kerja yang sering tidak termonitor dengan baik
- Proses bisnis yang kompleks
- Infrastruktur dan aset teknologi informasi tidak terkendali
- Tingkat rotasi pegawai yang tinggi
- Staff dan pimpinan baru perlu waktu untuk memahami kondisi organisasi
- Pengelolaan layanan berbasis teknologi informasi yang tidak sistematis

JASA RAHARJA

KEMENTERIAN KEUANGAN
DIREKTORAT JENDERAL PERIMBANGAN KEUANGAN

LIPI

RISTEKDIKTI

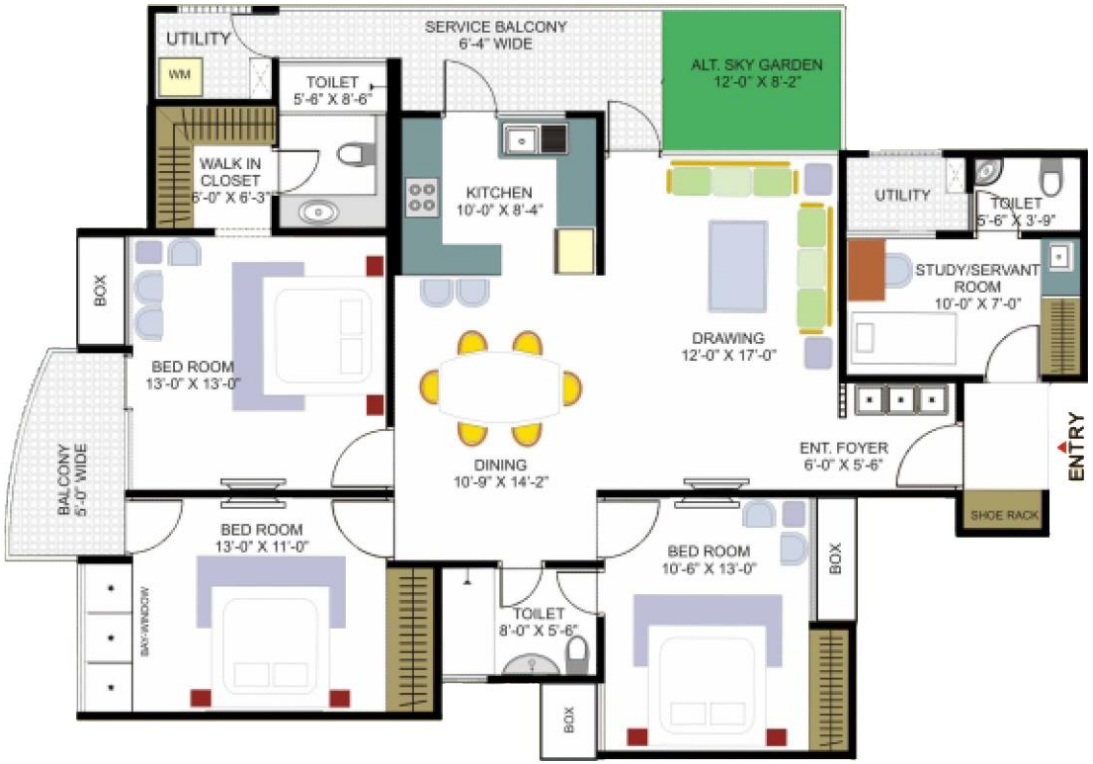
KRAKATAU STEEL

KOMPAS GRAMEDIA

Masalah di Organisasi

- Berhubungan dengan Aset dan Layanan Pendukung
  - Seluruh aset organisasi, di mana posisinya, bagaimana mengontrol dan memperbaiki bila ada kerusakan
  - Bagaimana memilih pembelian aset baru
  - Apakah arsitektur organisasi, pembagian divisi, cukup untuk mendukung proses bisnis organisasi
  - Dokumen yang diproduksi seluruh staf
- Berhubungan dengan Kegiatan
  - Kegiatan sehari-hari, kebiasaan masing-masing staf, dan bagaimana tahapan penyelesaian masalah
  - Bagaimana proses pengajuan cuti, pelaksanaan pekerjaan, pengunduran diri, dsb
- Berhubungan dengan Pengontrolan dan Pengukuran Kinerja
  - Bagaimana mengukur kinerja staf dan organisasi
  - Bagaimana aset dan kegiatan mendukung layanan yang disediakan organisasi

Kita Perlu Arsitektur Organisasi



- Struktur Organisasi
- Proses Bisnis
- Struktur Data dan Informasi
- Software dan Infrastruktur IT
- Kebijakan Keamanan
- Analisis Pola dari Data
- dsb …

Enterprise Architecture

1. Business Architecture
2. Data Architecture
3. Application Architecture
4. Technology Architecture

Kita Perlu Perencanaan Strategis

- Penentuan stakeholder
- Analisis kekuatan dan kelemahan organisasi
- Penentuan visi, misi dan tujuan
- Penentuan prioritas kegiatan
- Penentuan roadmap untuk beberapa tahun ke depan
- Penentuan pengukuran kinerja
- dsb …

IT Strategic Planning

1. Vision and Mission
2. SWOT Analysis
3. IT Roadmap and Strategies
4. IT Organization

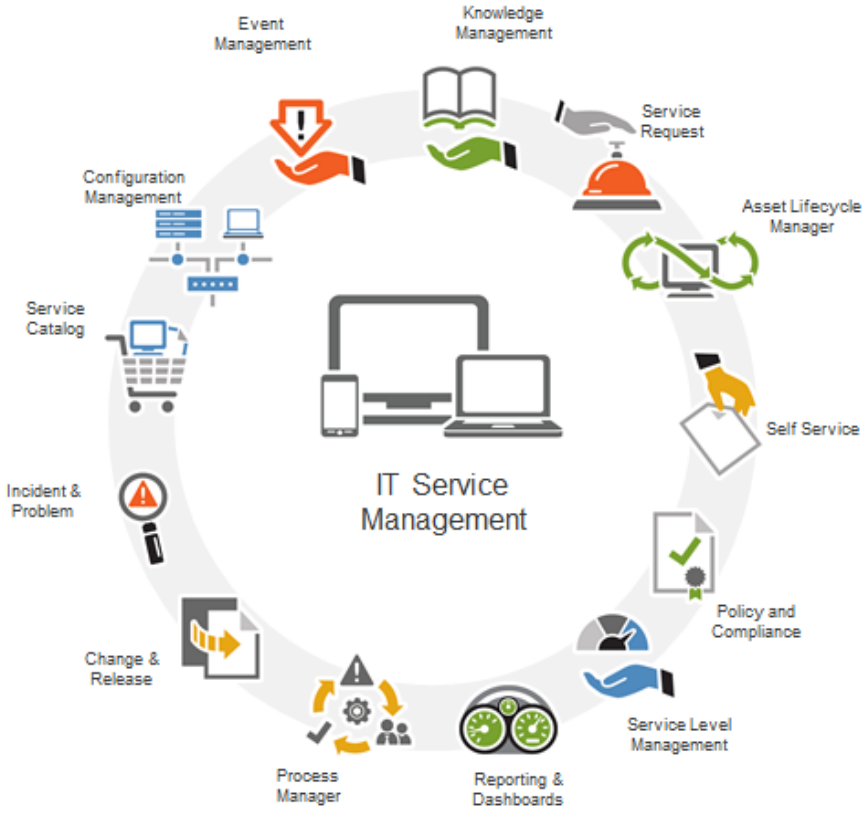
Kita Perlu Manajemen Kegiatan

- Bagaimana tahapan melakukan proyek
- Analisis dari suatu proyek
- Dokumen apa saja yang dihasilkan
- Bagaimana memonitor hasil pekerjaan
- Bagaimana cara mengukur hasil pekerjaan
- Software apa saja yang digunakan
- dsb ...

IT Project Management

1. Initiation
2. Planning
3. Executing
4. Monitoring and Controlling
5. Closing

Kita Perlu Pengoperasian Layanan



- Bagaimana membangun layanan IT yang baik
- Bagaimana pengaturan service level agreement
- Bagaimana bila ada masalah
- Bagaimana mengelola pengetahuan
- Bagaimana pengaturan pelaporan berkalanya
- dsb …

IT Service Management

1. Service Strategy
2. Service Design
3. Service Operation
4. Service Transition

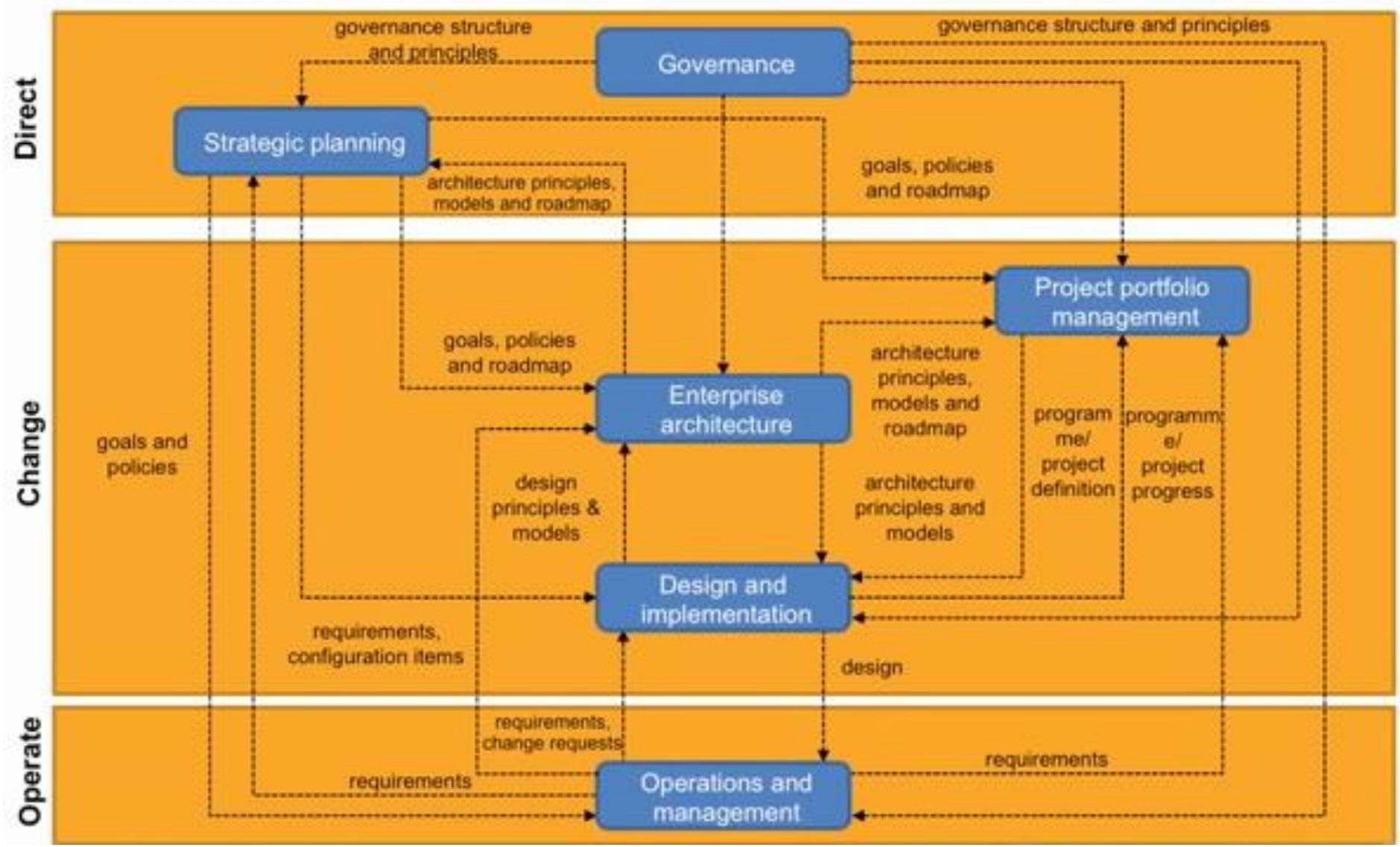
Kita Perlu Pengukuran Kinerja

- Kapan kinerja bisa diukur
- Parameter apa saja untuk mengukur kinerja
- Apa alat ukur yang bisa digunakan
- Bagaimana menilai tingkat kematangan dari kinerja
- Siapa yang berhak mengukur
- Siapa yang berhak menjawab kuesioner pengukuran

IT Monitoring Evaluation

1. Planning and Organization
2. Acquisition and Implementation
3. Delivery and Service
4. Monitoring

Kita Perlu Tata Kelola Teknologi Informasi



Enterprise Governance Drives Business and IT Governance

Enterprise Governance	Business Governance	IT Governance
Separation of Ownership & Control (Board)	**Direction & Control of the Business (CEO and Executives)**	**Direction and Control of IT (CIO and Direct Reports)**
• Roles of Board and Executives • Regulatory Compliance Oversight • Shareholder Rights • Business Operations & Control Oversight • Financial Accounting & Reporting Oversight • Risk Management Oversight	• Business Strategy, Plans & Objectives • Manage Execution • Performance Metrics, Controls and Incentives • Intellectual Capital and Management/Succession Planning • Manage Innovation, Proactive Change and Continuous Improvements	• IT Strategy, Plans & Objectives • Alignment with Business Plans and Objectives • IT Assets and Resources • Demand Management (Customer) • Value Delivery and Execution Management (PM, Service Management) • Risk, Change & Performance Management

Definisi Tata Kelola Teknologi Informasi

- IT Governance is the responsibility of the Board of Directors and executive management, it is an integral part of enterprise governance and consist of the leadership and organizational structures and processes that ensure that the organization's IT sustains and extends the organization's strategy and objectives *(IT Governance Institute, 2001)*
- Specifying the decision rights and accountability framework to encourage desirable behaviour in using IT *(Weill & Ross, 2004)*
- The system by which the current and future use of ICT is directed and controlled. It involves evaluating and directing the plans for the use of ICT to support the organization and monitoring this use to achieve plans. It includes the strategy and policies for using ICT within an organization *(Australian Standard on Corporate Governance of ICT, 2005)*

Manfaat Tata Kelola Teknologi Informasi

- Strengthens the relationship between the organization and IT
  - Helps ensure limited IT resources are focused on the right strategic and tactical activities at the right time
- Synergies with Enterprise Risk Management (ERM) and other risk management activities
  - Helps ensure the appropriate IT risk management processes and activities are in place and operating effectively
- Enhanced visibility into the IT Function's ability to achieve its both strategic objectives and Key Performance Indicators (KPIs) for day-to-day activities and longer-term/strategic initiatives
- Improved adaptability of the IT Function to organizational and IT environment changes
  - Formality of Governance structure, processes and activities enables more efficient and effective response to change

Landasan Tata Kelola Teknologi Informasi

- Permen Kominfo No 41 2007 tentang Tata Kelola Teknologi Informasi Nasinal
- UU 30 tahun 2014 tentang Administrasi Pemerintahan
- Perpres No 7 tahun 2015 tentang Organisasi Kementrian Negara
- Permen Pan No 12 tahun 2011 tentang Penataan Tatalaksana Proses Bisnis
- Permen Keuangan No 131 tentang Proses Bisnis
- Permen Kominfo tentang Pedoman Teknis Audit Manajemen Keamanan Sistem Elektronik
- Keputusan Mentri Keuangan No 330 tahun 2011 tentang Standard Manajemen Proyek Teknologi Informasi
- Permen Pan RB no 11 Tahun 2015 tentang Road Map Reformasi Birokrasi 2015-2019

Kunci Kesuksesan Tata Kelola Teknologi Informasi

- Dukungan dan komitmen penuh dari seluruh stakeholder dan pimpinan organisasi
- Project pengembangan tata kelola IT bukan hanya kebutuhan divisi IT, tapi kebutuhan seluruh elemen organisasi
- Tata kelola IT akan menggambarkan bisnis proses, aset, infrastruktur, analisis gap dan kebutuhan seluruh unit kerja, sehingga diperlukan koordinasi dan kolaborasi dari seluruh elemen organisasi
- Perlu presentasi, diskusi dan interview secara intensif dengan pimpinan organisasi sehingga kebutuhan lebih akurat tertangkap

2.2 Apa dan Mengapa Framework Tata Kelola?

Architect the Enterprise Holistically

EA to achieve Enterprise Excellence

Adopting holistic architecture analysis on business practice

	what	How	Who	When	Where	Why
Planners						
Owners						
Designers						
Builders						

See the big picture and know the detail

See the Whole

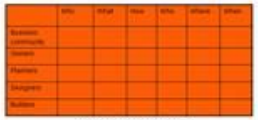
Knowledge Sharing

Organic EA Model

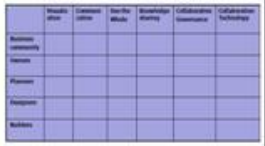
Business Architecture

EA beyond IT

Communication architecture



Collaboration Architecture



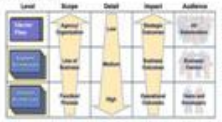
Governance Architecture

Risk Management Architecture

The Three Architecture Theory

3X3 complex architecture framework

Adapting to change in three tier approach

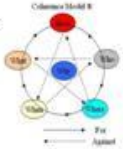


Initial EA : Master Plan

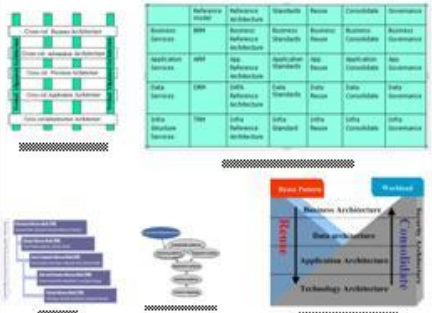
Bridging strategy and execution

Vertical Architecture Theory

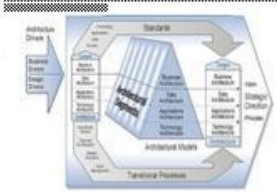
Circular Architecture Theory



Horizontal Architecture theory



Continuous EA : Segment Architecture

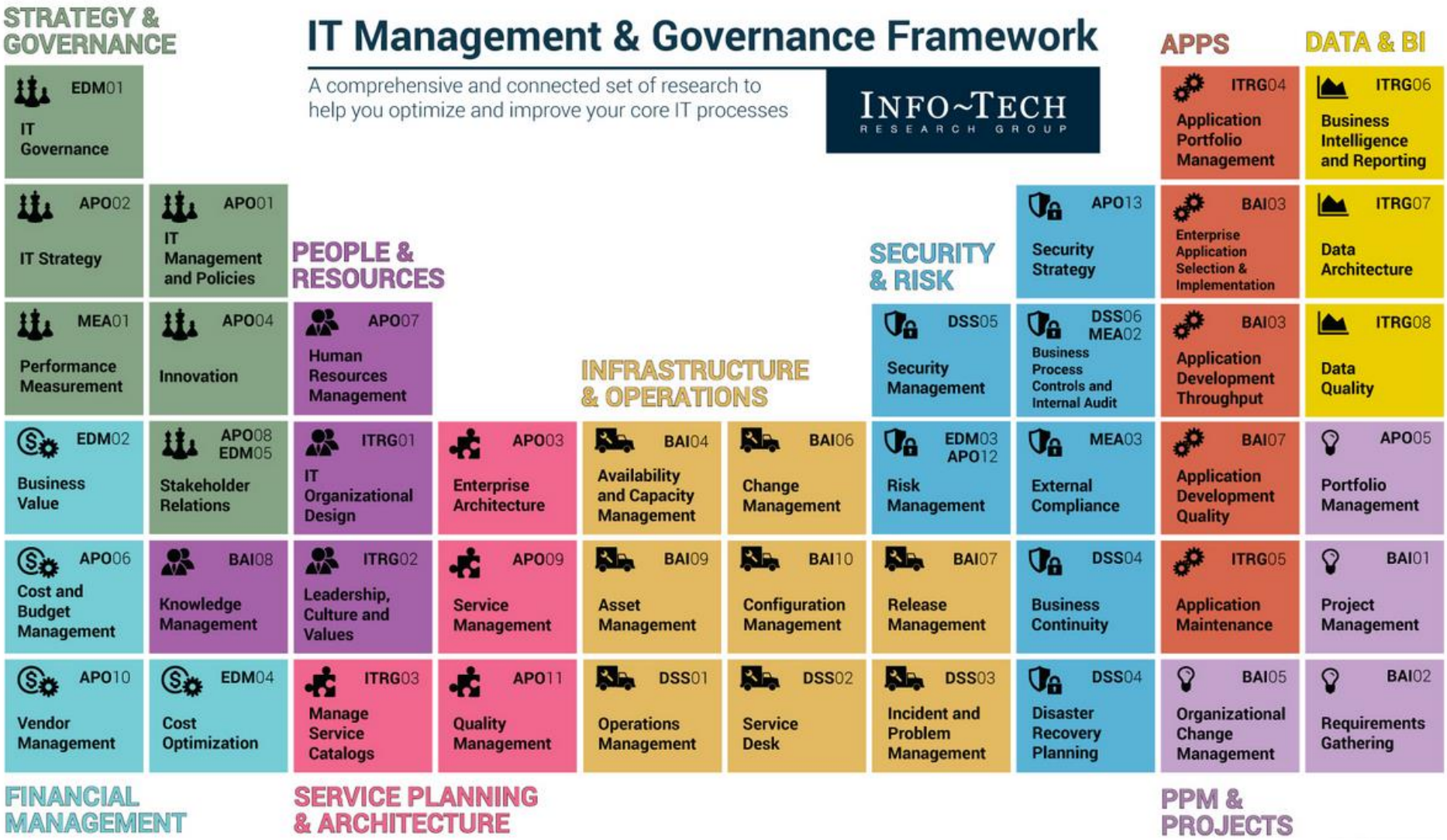


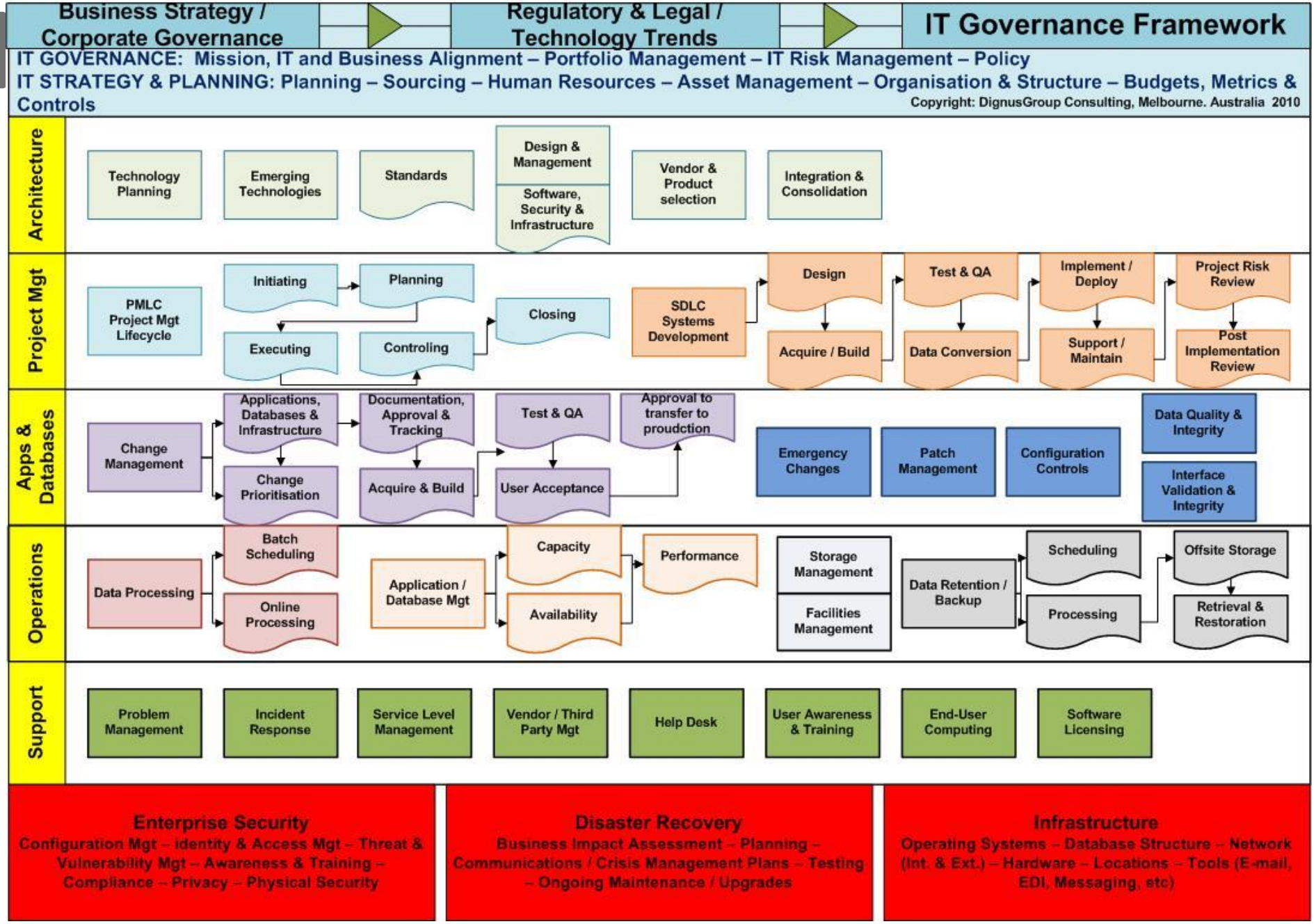
Actionable EA : Enable Agile Solution Architecture

Strategic planning framework

Service management for execution

Architect the Enterprise Holistically





Enterprise Architecture Blueprint 2009 – My Bank Corporation

MyBankCorp.

Enterprise Architecture Team

Stakeholders

1. Credit Consumers
2. Business Clients (Intermediaries)
3. Government
4. Branch
5. Holding
6. Board Members
7. Management
8. Employees

2006-2009 Factory Strategy

Intentions, Policies, Objectives, Goals

1. Focus
   1. Be and stay the number one in Intermediary Consumer Finance through the intermediary channel
   2. Realize a strong growth in Consumer Finance through the direct channel
2. Simplification
   1. Simple and smart products
   2. High volumes
   3. Factory model for processing
   4. Standardization of information systems
3. Flexibility / Acquisition
   1. Multi Channel
   2. Multi-Label / White-Label
   3. Growth: Autonomous
   4. Integrate new companies
   5. Innovation
   6. Continuous Process Improvement
4. Passion for the Client and Distribution Partners
   1. Understanding clients and partners needs
   2. Single Customer Contact Center
   3. Knowledge of clients, partners and markets
   4. Making business simple and sensible for clients and partners
   5. Partner Support
5. Continuity
   1. Business Continuity Management
   2. Availability Business and ICT
   3. Governance and control of Operations and ICT
   4. Compliant and secure

Vision 2009 on Core Business & Consumer Finance Requirements

The world is changing fast, so do our customers needs

Credit Consumers want to be independent and free

Our business evolves towards a virtual/ digital business

Our clients need / ask for simple and sound products

We need a state-of-the-art IT-Infrastructure to survive and stay competitive

We need to execute Multi Channel / Multi Distribution policy

We need a Multi Platform Integrator Architecture

Enable High-Availability / Real-Time transactions

Customers have a need for Self Service

Advanced Automation of Business

Be a Consumer Finance Factory

Be flexible for a shorter Time-to-Market

Provide Product Labeling & Price Transparency

Intensify Relationship Management

Supply Distribution Partners Servicewand Support Systems - Business & IT-Wise

Supply portals as a channel for the business towards customers

Facilitate Knowledge and Collaboration

Implement Performance management

Implement Continuity & Compliance

Implement Service Orientation

We are proud of our company and our unique services creating possibilities for our customers

Context: My Bank Corporation 01/10/2009

Leading Design Principles

Core Enterprise Wide Concepts: Techniques, Technologies & Products

Competitive Figures

Information

Title:	Enterprise Architecture Blueprint
Author:	Mark Paauwe
Architects:	Information Manager, Business Manager, Network Engineer, Database Specialist
Version:	0.8
Status:	Concept
Date:	8 November 2009

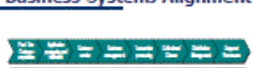
Dragon1 Enterprise Architecture Method

HAAIWE

Communication Message

Front office / Back office

Business Systems Alignment



Legenda

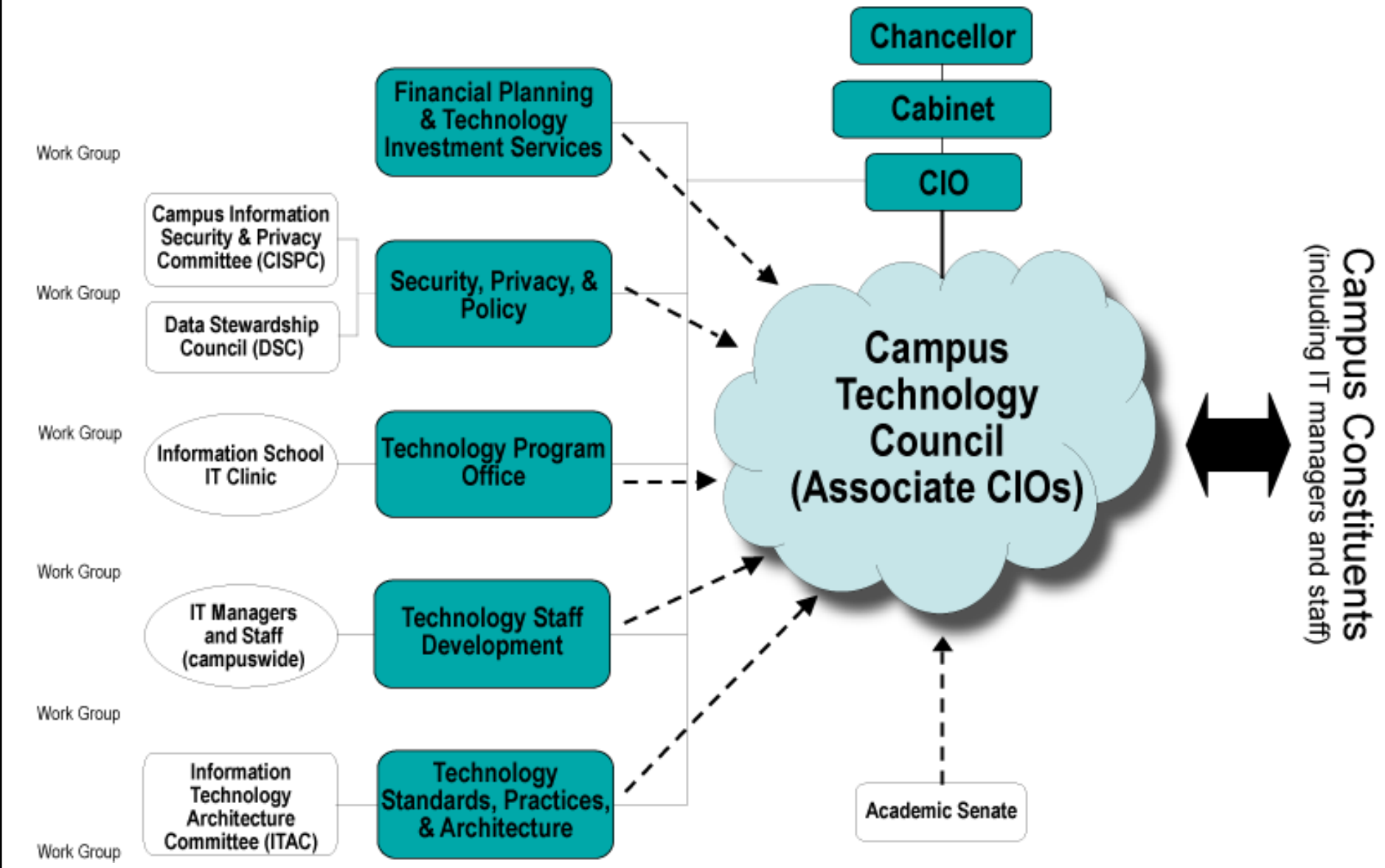
Component, Object, Service, Data, Application, Label, Employee, Manager, Product, Service, Server, Firewall, Network, Router, Blades

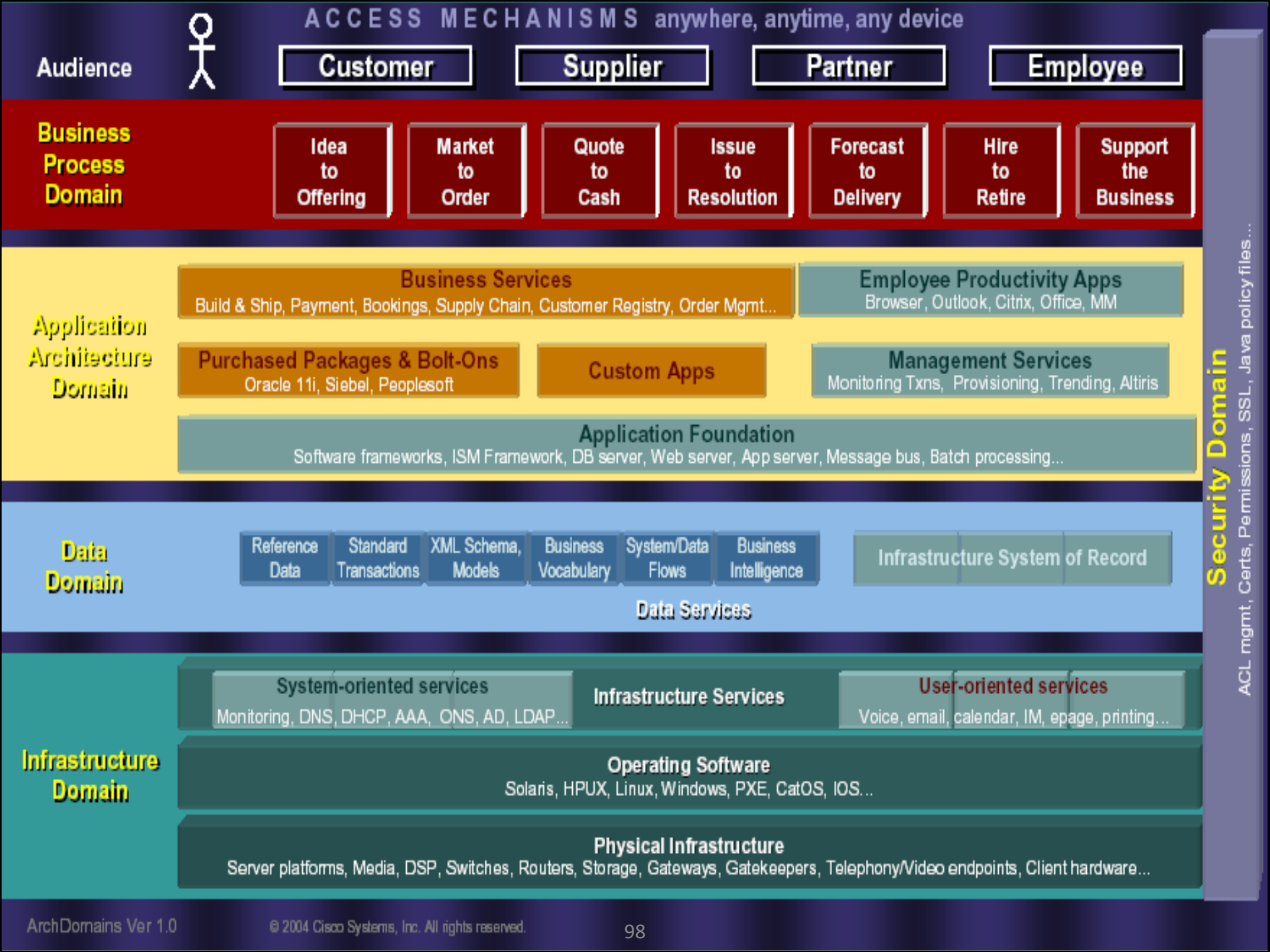
References

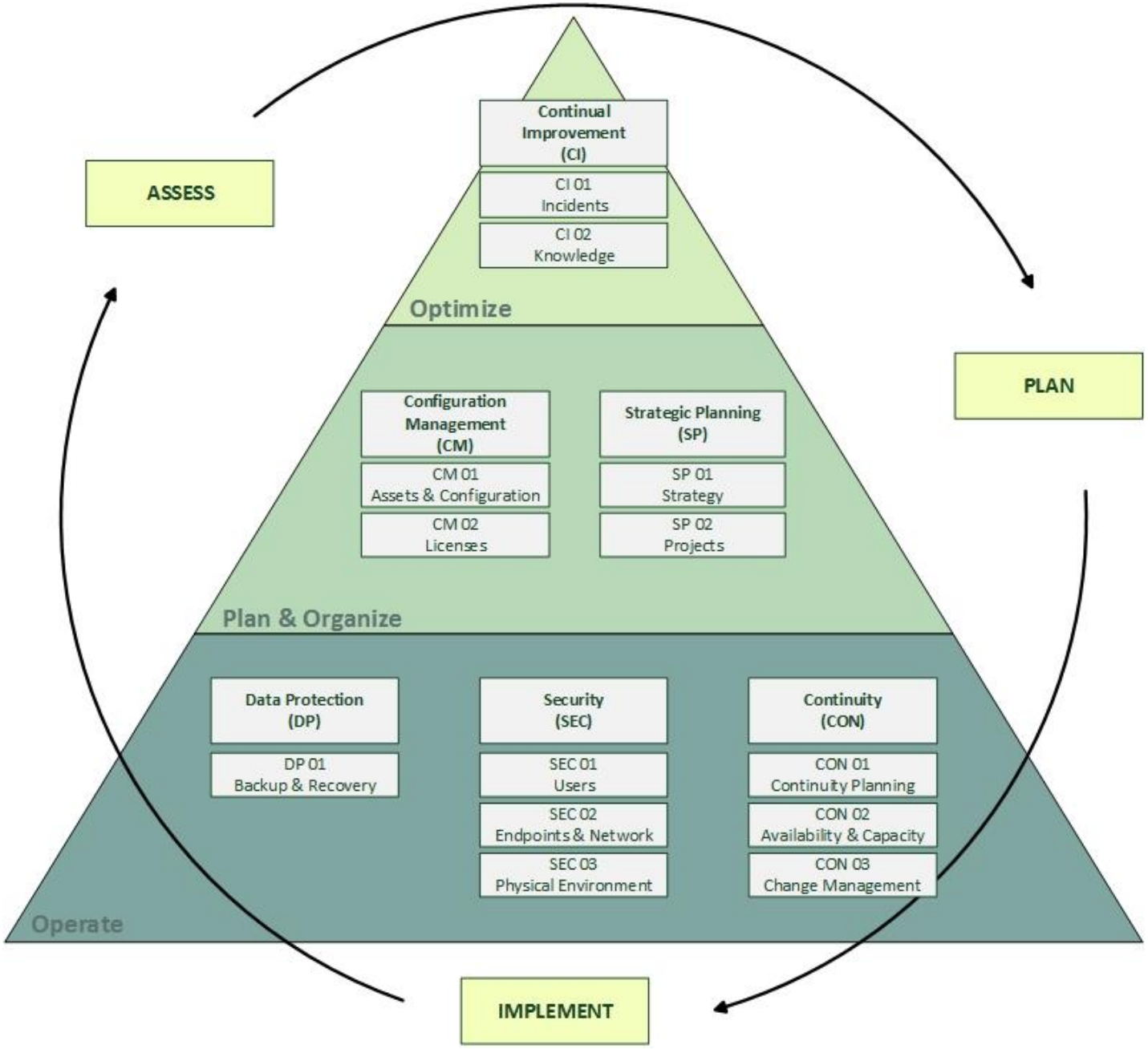
The following documents acted as source of information:

- Interviews IT-management and IT-workers
- Vision and Strategy Bank 2006-2009
- Interviews with Bank IT-Management and Architects
- Information Policies Bank
- Architecture Documentation Bank
- Virtualization Plan and Design
- ICIL Documentation
- ICIMS Documentation
- Front Office Design Documentation

UC Berkeley IT Governance Structure




ACCESS MECHANISMS anywhere, anytime, any device
Audience
Customer
Supplier
Partner
Employee
Business Process Domain
Idea to Offering
Market to Order
Quote to Cash
Issue to Resolution
Forecast to Delivery
Hire to Retire
Support the Business
Application Architecture Domain
Business Services
Build & Ship, Payment, Bookings, Supply Chain, Customer Registry, Order Mgmt...
Employee Productivity Apps
Browser, Outlook, Citrix, Office, MM
Purchased Packages & Bolt-Ons
Oracle 11i, Siebel, Peoplesoft
Custom Apps
Management Services
Monitoring Txns, Provisioning, Trending, Altiris
Application Foundation
Software frameworks, ISM Framework, DB server, Web server, App server, Message bus, Batch processing...
Data Domain
Reference Data
Standard Transactions
XML Schema, Models
Business Vocabulary
System/Data Flows
Business Intelligence
Infrastructure System of Record
Data Services
Infrastructure Domain
System-oriented services
Monitoring, DNS, DHCP, AAA, ONS, AD, LDAP...
Infrastructure Services
User-oriented services
Voice, email, calendar, IM, epage, printing...
Operating Software
Solaris, HPUX, Linux, Windows, PXE, CatOS, IOS...
Physical Infrastructure
Server platforms, Media, DSP, Switches, Routers, Storage, Gateways, Gatekeepers, Telephony/Video endpoints, Client hardware...
Security Domain
ACL mgmt, Certs, Permissions, SSL, Java policy files...
ArchDomains Ver 1.0
© 2004 Cisco Systems, Inc. All rights reserved.
98



Bagaimana Tata Kelola Teknologi Informasi?

Harus mulai dari mana?

Siapa saja yang terlibat?

Apa yang harus dibuat?

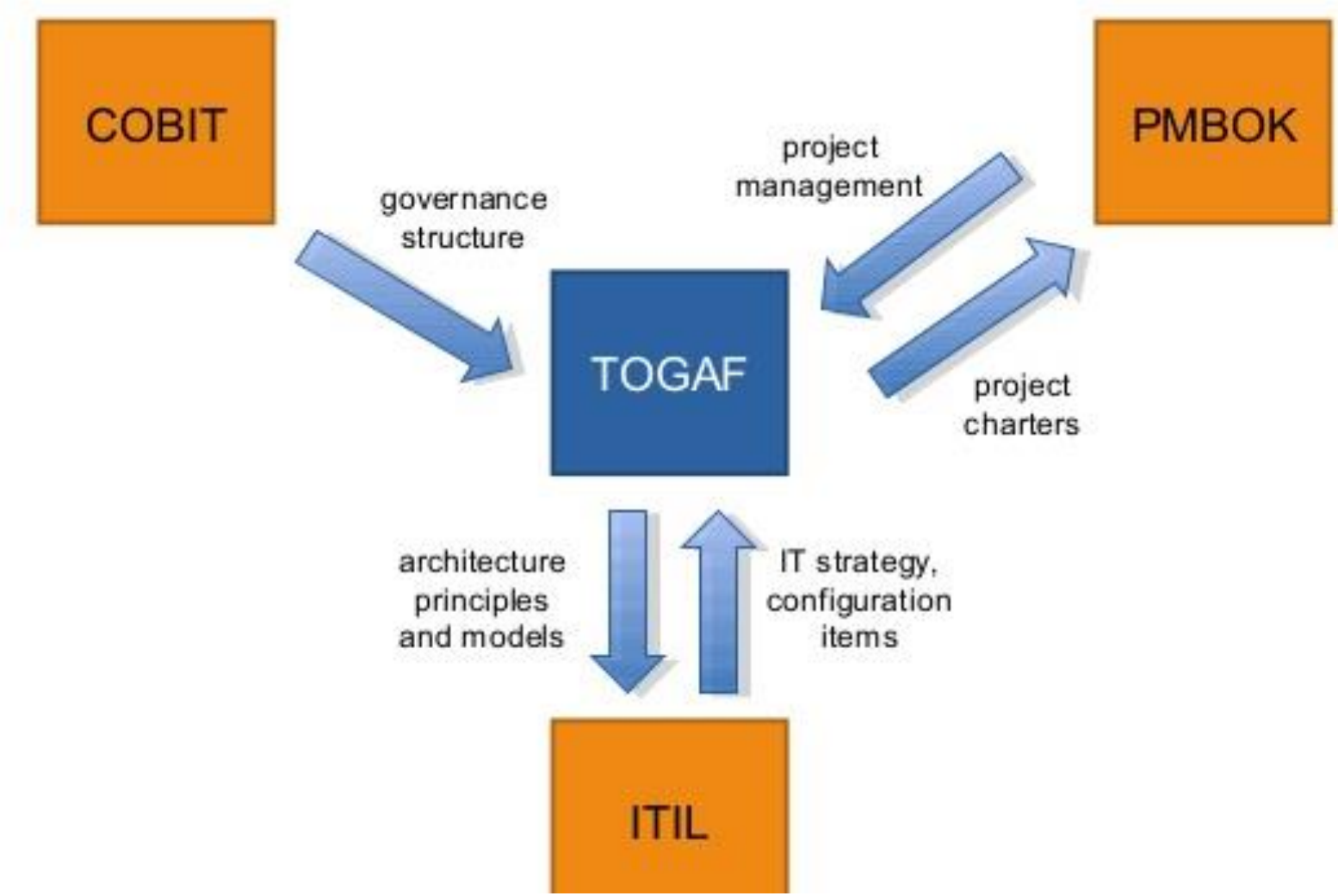
Bagaimana tahapan pembuatannya?

Bagaimana standardisasi untuk alurnya?

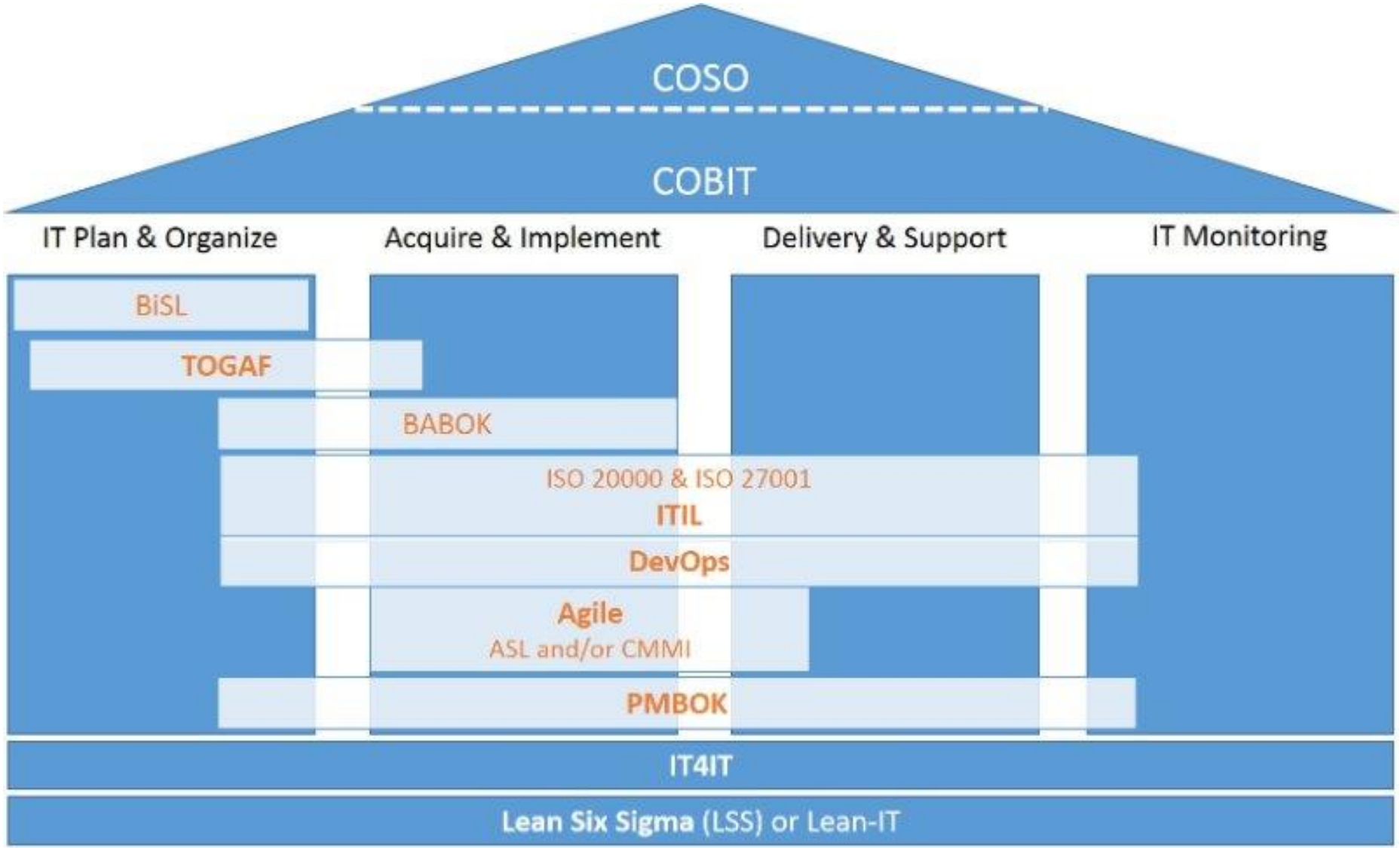
Pusing? Perlu contoh dan template?

IT Governance Framework

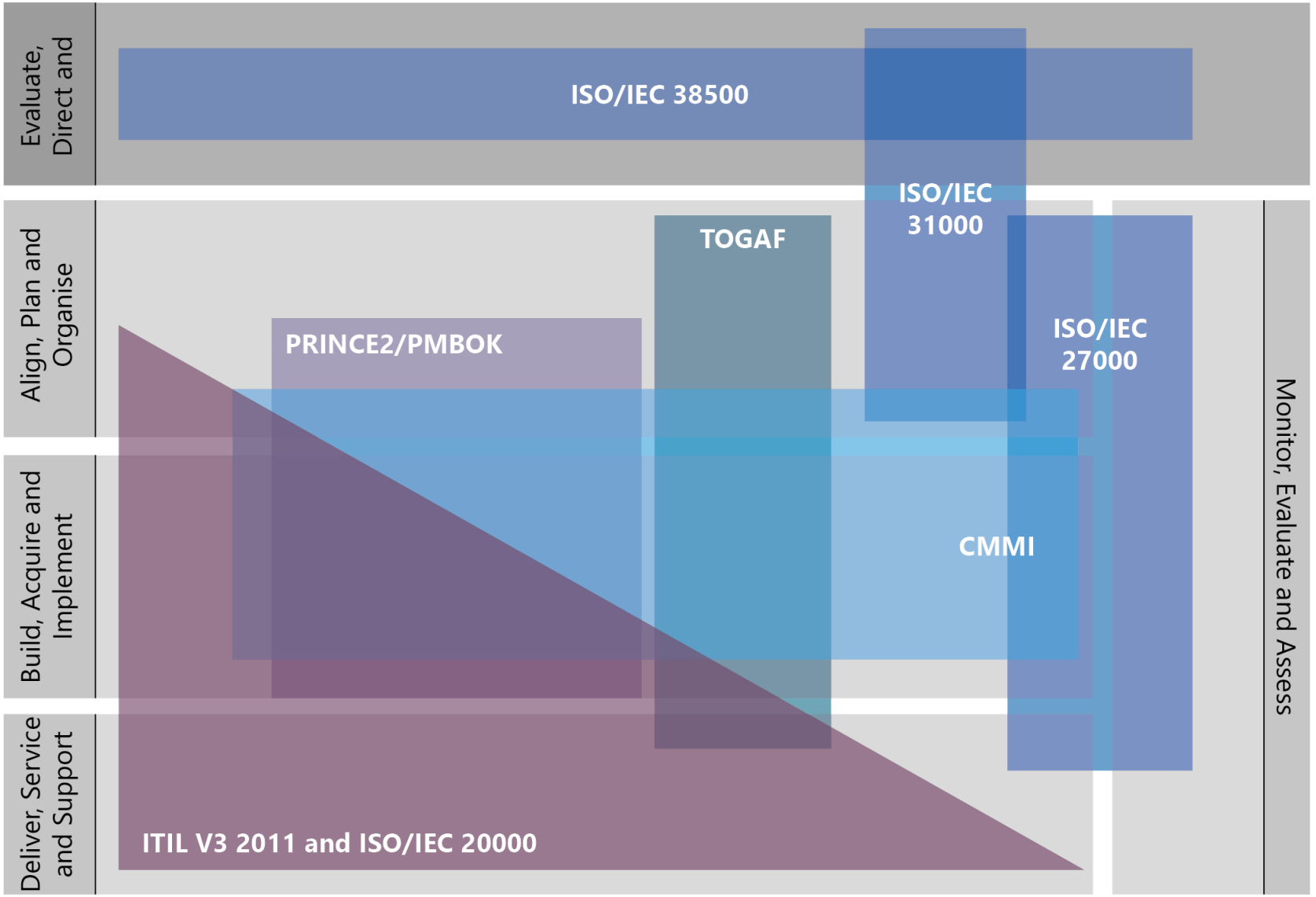
Framework Tata Kelola Teknologi Informasi



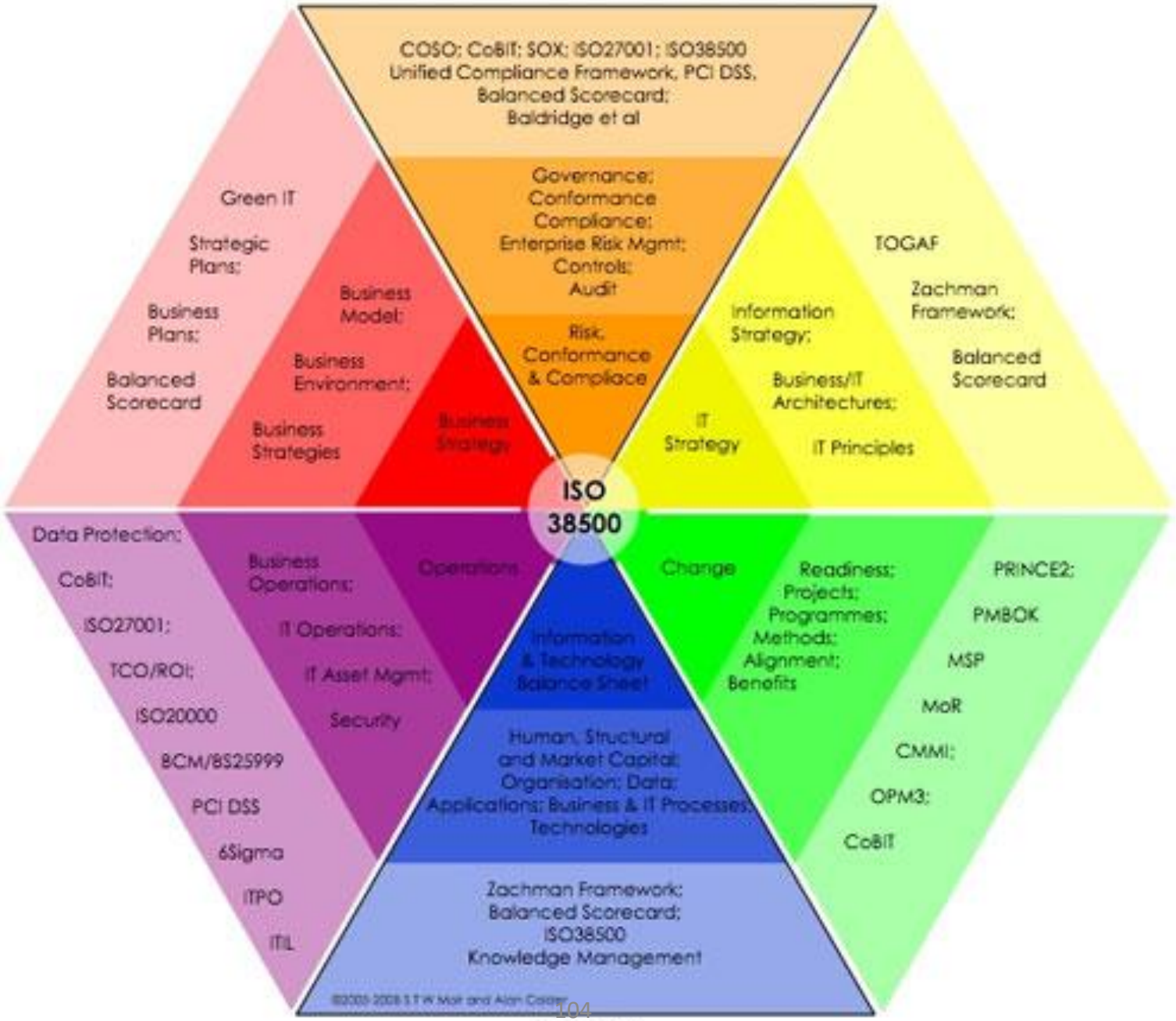
Framework Tata Kelola Teknologi Informasi



Framework Tata Kelola Teknologi Informasi



The IT Governance Framework



3. Framework Tata Kelola Teknologi Informasi

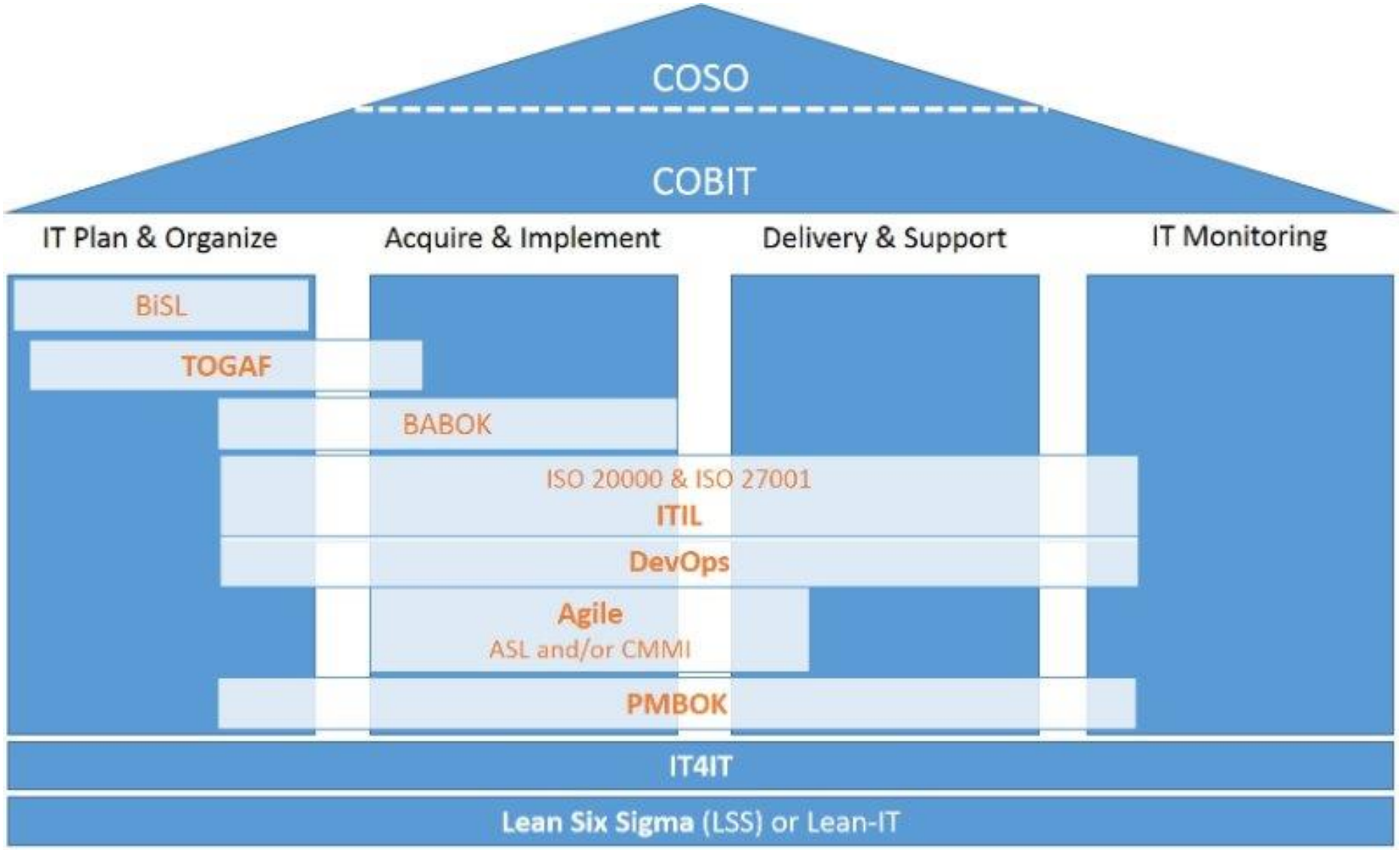
3.1 TOGAF (Enterprise Architecture Framework)

3.2 PMBOK (Project Management Framework)

3.3 ITIL (Service Management Framework)

3.4 COBIT (IT Monitoring and Evaluation Framework)

Framework Tata Kelola Teknologi Informasi

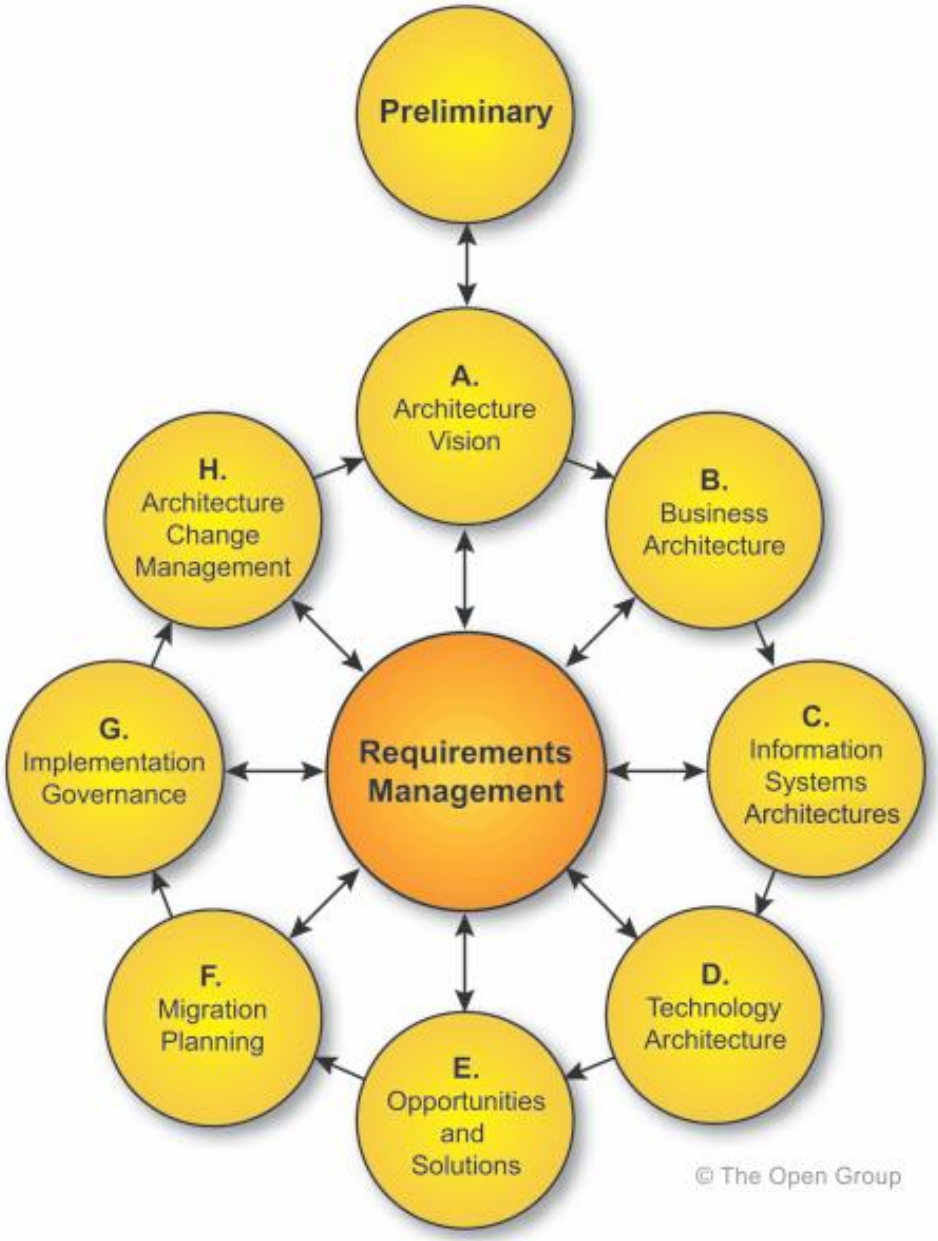


3.1 TOGAF (Enterprise Architecture Framework)

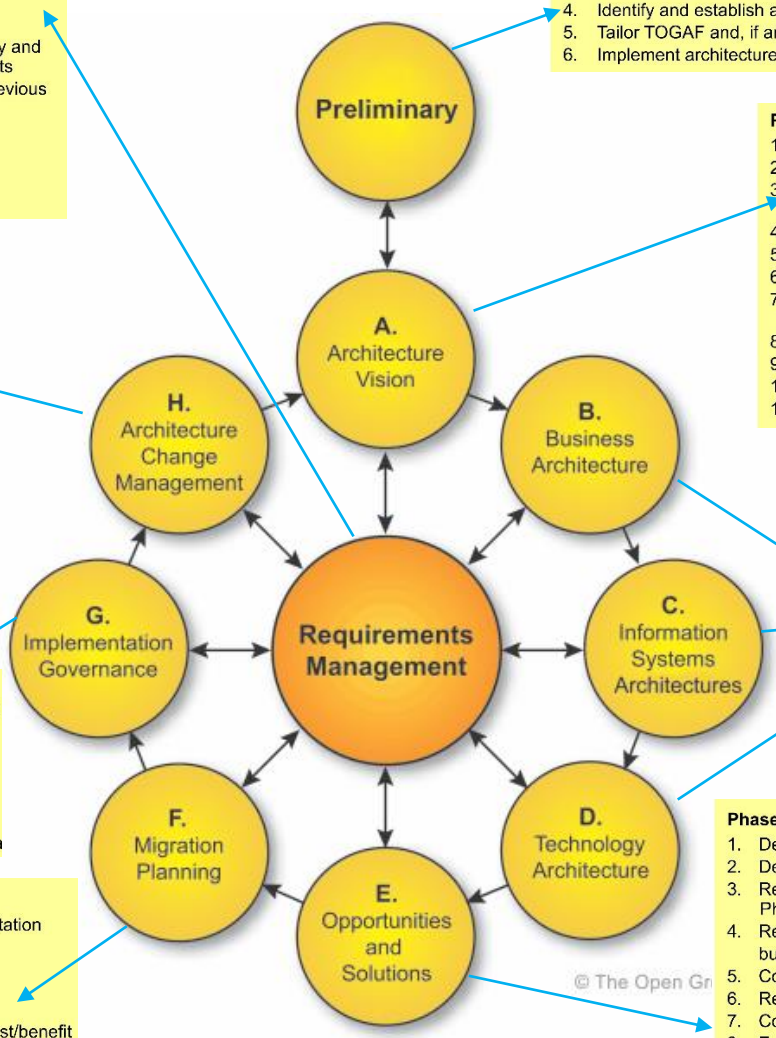
What is TOGAF?

- TOGAF is a framework (a detailed method and a set of supporting tools) for developing an enterprise architecture
- TOGAF provides the methods and tools for assisting in the acceptance, production, use, and maintenance of an enterprise architecture
- It is based on an iterative process model supported by best practices and a re-usable set of existing architecture assets
- It may be used freely by any organization wishing to develop an enterprise architecture for use within that organization

TOGAF


Preliminary
A.
Architecture
Vision
B.
Business
Architecture
C.
Information
Systems
Architectures
D.
Technology
Architecture
E.
Opportunities
and
Solutions
F.
Migration
Planning
G.
Implementation
Governance
H.
Architecture
Change
Management
Requirements
Management
© The Open Group

TOGAF Methodology



Requirements Management

1. Identify/document requirements
2. Baseline requirements
3. Monitor baseline requirements
4. Identify changed requirement; remove, add, modify, and re-assess priorities
5. Identify changed requirement and record priorities; identify and resolve conflicts; generate requirements impact statements
6. Assess impact of changed requirement on current and previous ADM phases
7. Implement requirements arising from Phase H
8. Update the requirements repository
9. Implement change in the current phase
10. Assess and revise gap analysis for past phases

Preliminary Phase

1. Scope the enterprise organizations impacted
2. Confirm governance and support frameworks
3. Define and establish enterprise architecture team and organization
4. Identify and establish architecture principles
5. Tailor TOGAF and, if any, other selected architecture frameworks
6. Implement architecture tools

Phase A: Architecture Vision

1. Establish the architecture project
2. Identify stakeholders, concerns, and business requirements
3. Confirm and elaborate business goals, business drivers, and constraints
4. Evaluate business capabilities
5. Assess readiness for business transformation
6. Define scope
7. Confirm and elaborate architecture principles, including business principles
8. Develop Architecture Vision
9. Define the Target Architecture value propositions and KPIs
10. Identify the business transformation risks and mitigation activities
11. Develop Statement of Architecture Work; secure approval

Phase H: Architecture Change Management

1. Establish value realization process
2. Deploy monitoring tools
3. Manage risks
4. Provide analysis for architecture change management
5. Develop change requirements to meet performance targets
6. Manage governance process
7. Activate the process to implement change

Phase B: Business Architecture
Phase C: Information Systems Architectures
Phase D: Technology Architecture

1. Select reference models, viewpoints, and tools
2. Develop Baseline Architecture Description
3. Develop Target Architecture Description
4. Perform gap analysis
5. Define candidate roadmap components
6. Resolve impacts across the Architecture Landscape
7. Conduct formal stakeholder review
8. Finalize the Architecture
9. Create Architecture Definition Document

Phase G: Implementation Governance

1. Confirm scope and priorities for deployment with development management
2. Identify deployment resources and skills
3. Guide development of solutions deployment
4. Perform enterprise architecture compliance reviews
5. Implement business and IT operations
6. Perform post-implementation review and close the implementa

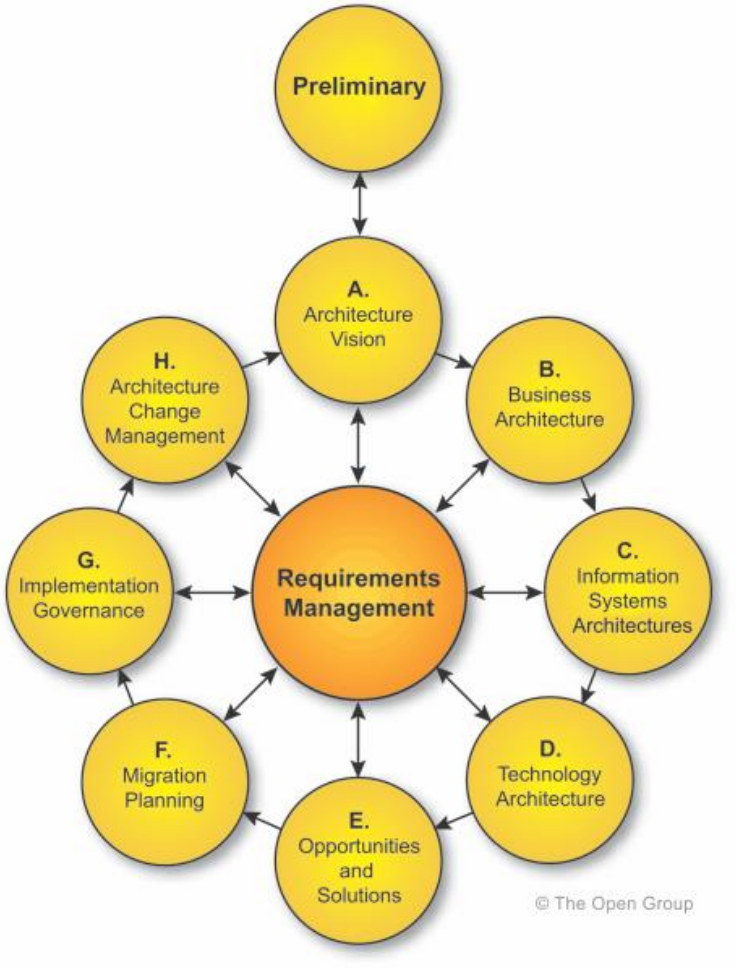
Phase E: Opportunities and Solutions

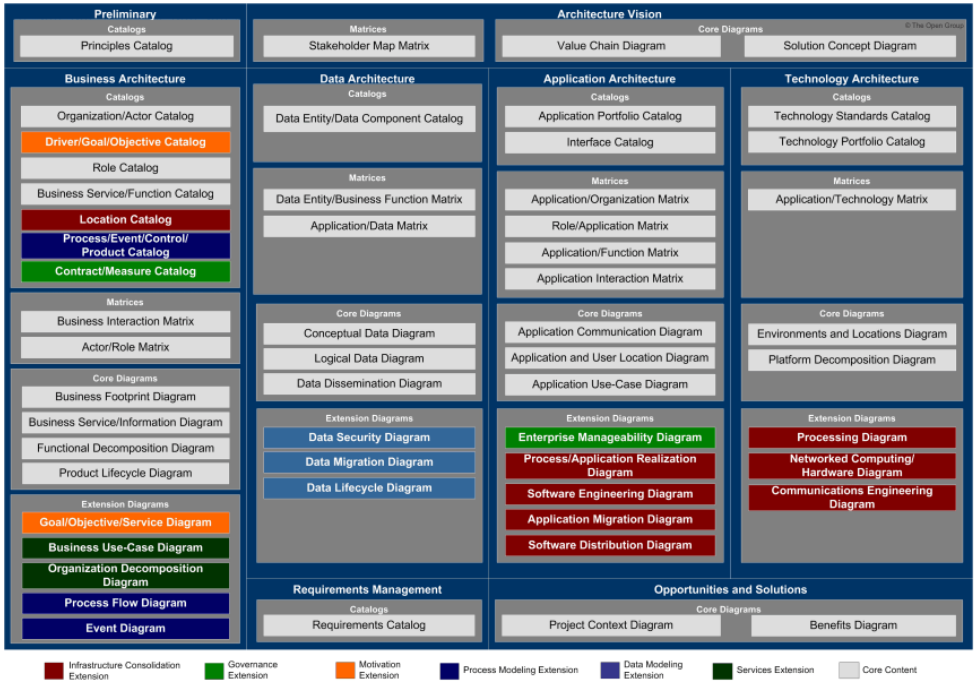
1. Determine/confirm key corporate change attributes
2. Determine business constraints for implementation
3. Review and consolidate gap analysis results from Phases B to D
4. Review consolidated requirements across related business functions
5. Consolidate and reconcile interoperability requirements
6. Refine and validate dependencies
7. Confirm readiness and risk for business transformation
8. Formulate Implementation and Migration Strategy
9. Identify and group major work packages
10. Identify Transition Architectures
11. Create Architecture Roadmap & Implementation and Migration Plan

Phase F: Migration Planning

1. Confirm management framework interactions for Implementation and Migration Plan
2. Assign a business value to each work package
3. Estimate resource requirements, project timings, and availability/delivery vehicle
4. Prioritize the migration projects through the conduct of a cost/benefit assessment and risk validation
5. Confirm Architecture Roadmap and update Architecture Definition Document
6. Complete the Implementation and Migration Plan
7. Complete the development cycle and document lessons learned

TOGAF Methodology and Artifacts

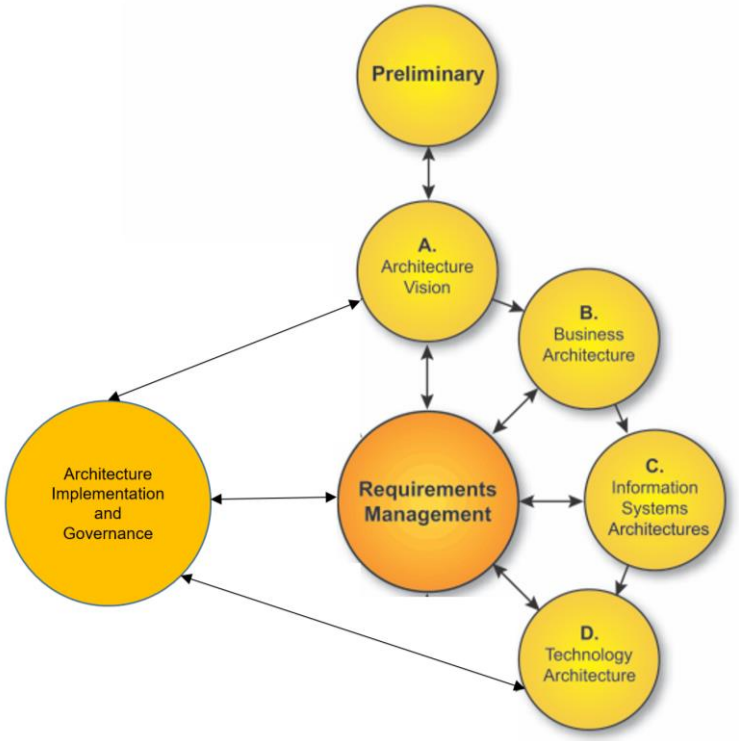


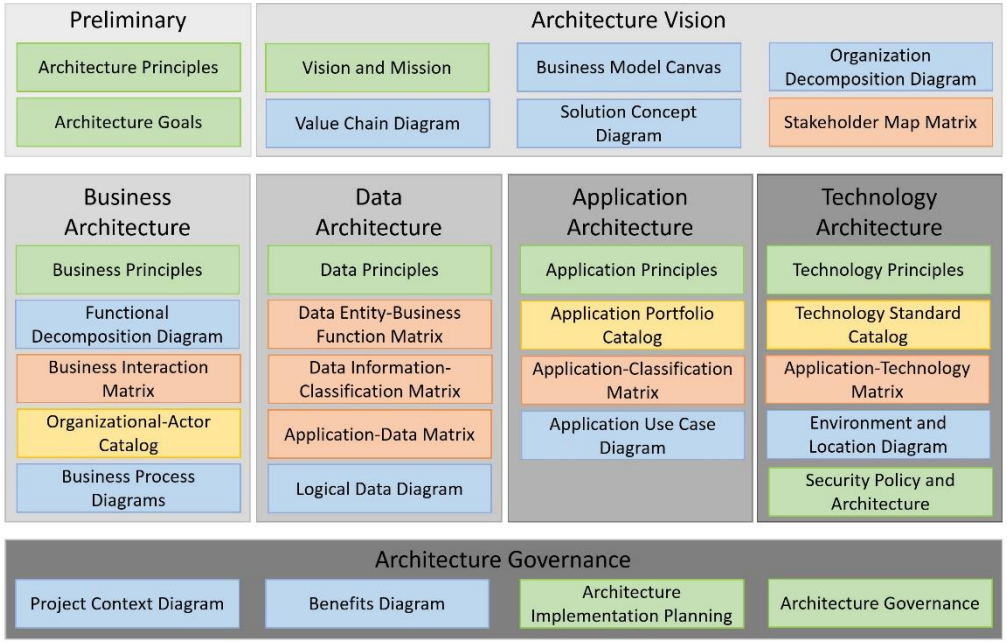


TOGAF Methodology

TOGAF Artifacts

Modified TOGAF Framework (Wahono, 2015)





Modified TOGAF Methodology

Modified TOGAF Artifacts

EA - Architecture Vision

Brainmatics Vision and Mission

BRAINMATICS

Vision

- Menjadi perusahaan penyedia jasa training dan pengembang software dengan kualitas terbaik di Indonesia

Mission

- Menyediakan layanan jasa training dan sertifikasi di bidang teknologi informasi dengan kurikulum internasional yang berkarakter *progressive*, *customizable* dan berbasis *experience*
- Menyediakan layanan pengembangan software *custom* dan *generic* dengan metodologi standard internasional dan berbasis pengalaman industri

Business Model Canvas

PT Brainmatics Cipta Informatika

Key Partners

- Pearson Vue
- Kryterion Online
- Prometrics
- Percetakan
- Penerbit dan Distributor Buku
- Food Court

Key Activities

- Software Development
- Training Center
- Certification Examination

Key Resources

- Kurikulum
- Pegawai
- Brand Romi Satria Wahono
- Online Market
- Brand IlmuKomputer.Com

Value Propositions

- Kurikulum Internasional dan *Customizable* dengan Kebutuhan
- Pengajar dengan Kompetensi Terpadu Akademisi dan Industri
- Ruang Kelas Nyaman dan Posisi di Tengah Kota Jakarta
- International Authorized Training and Testing Center
- Pengembangan Software dengan Metodologi Standard Internasional

Customer Relationships

- Offline: Kegiatan Workshop dan Training
- Online: Social Media Participation, Situs Brainmatics.Com

Channels

- Email
- Telepon
- Brainmatics.Com
- Instant Messaging (YM, WA, Line, BBM)
- Social Media (Kaskus, Facebook, Twitter)

Customer Segments

- Staff IT
- Dosen
- Mahasiswa
- Peserta Ujian Sertifikasi
- Lembaga Pendidikan
- Lembaga Pemerintahan
- Perusahaan Swasta

Cost Structure

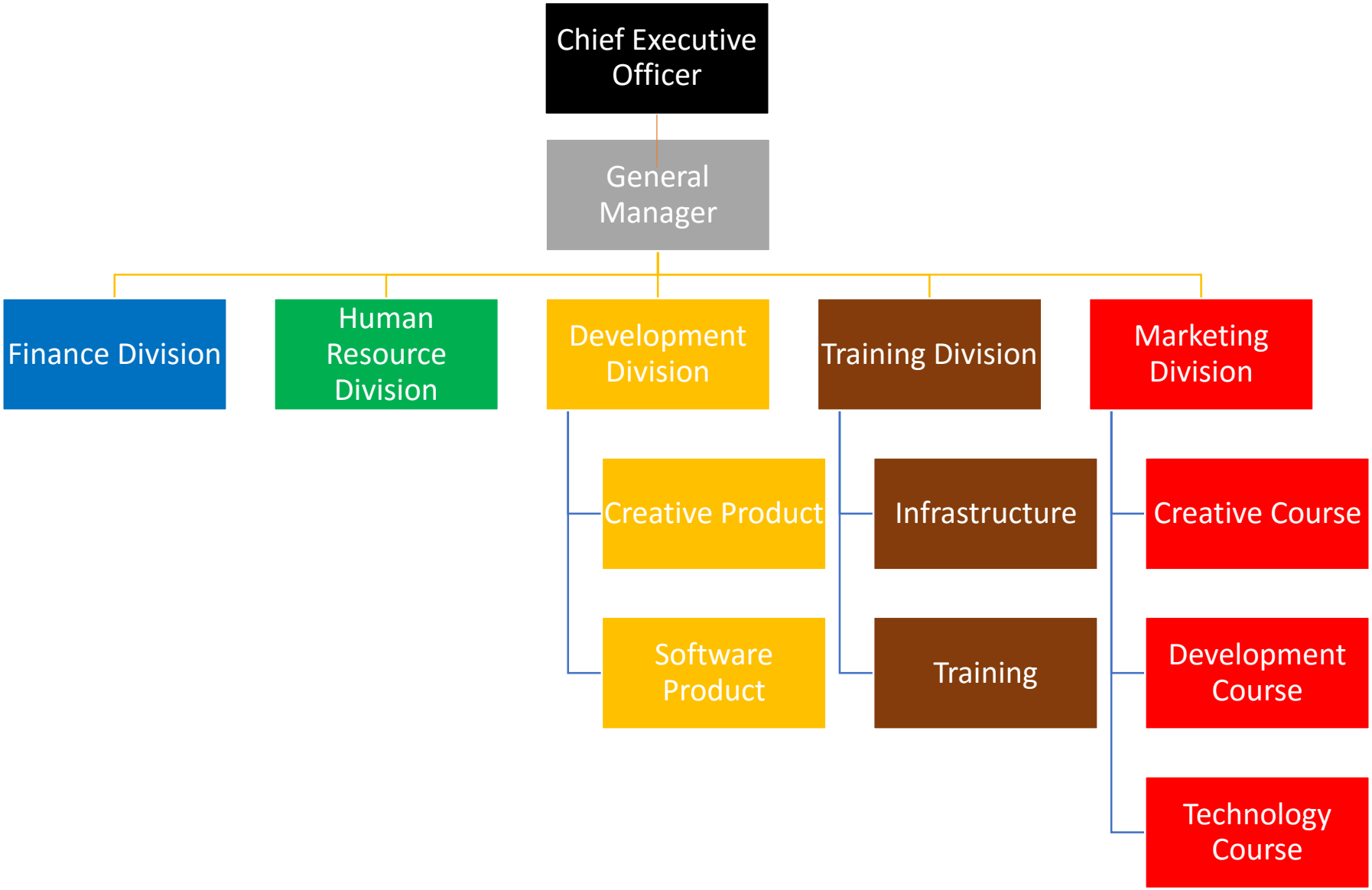
- Honor Pengajar
- Biaya Operasional
- Gaji Pegawai
- Biaya Infrastruktur
- Biaya Marketing

Revenue Streams

- Penjualan Jasa Training
- Penjualan Produk Software

Value Chain Diagram

Organization Decomposition Diagram



Visi dan Misi DJPK

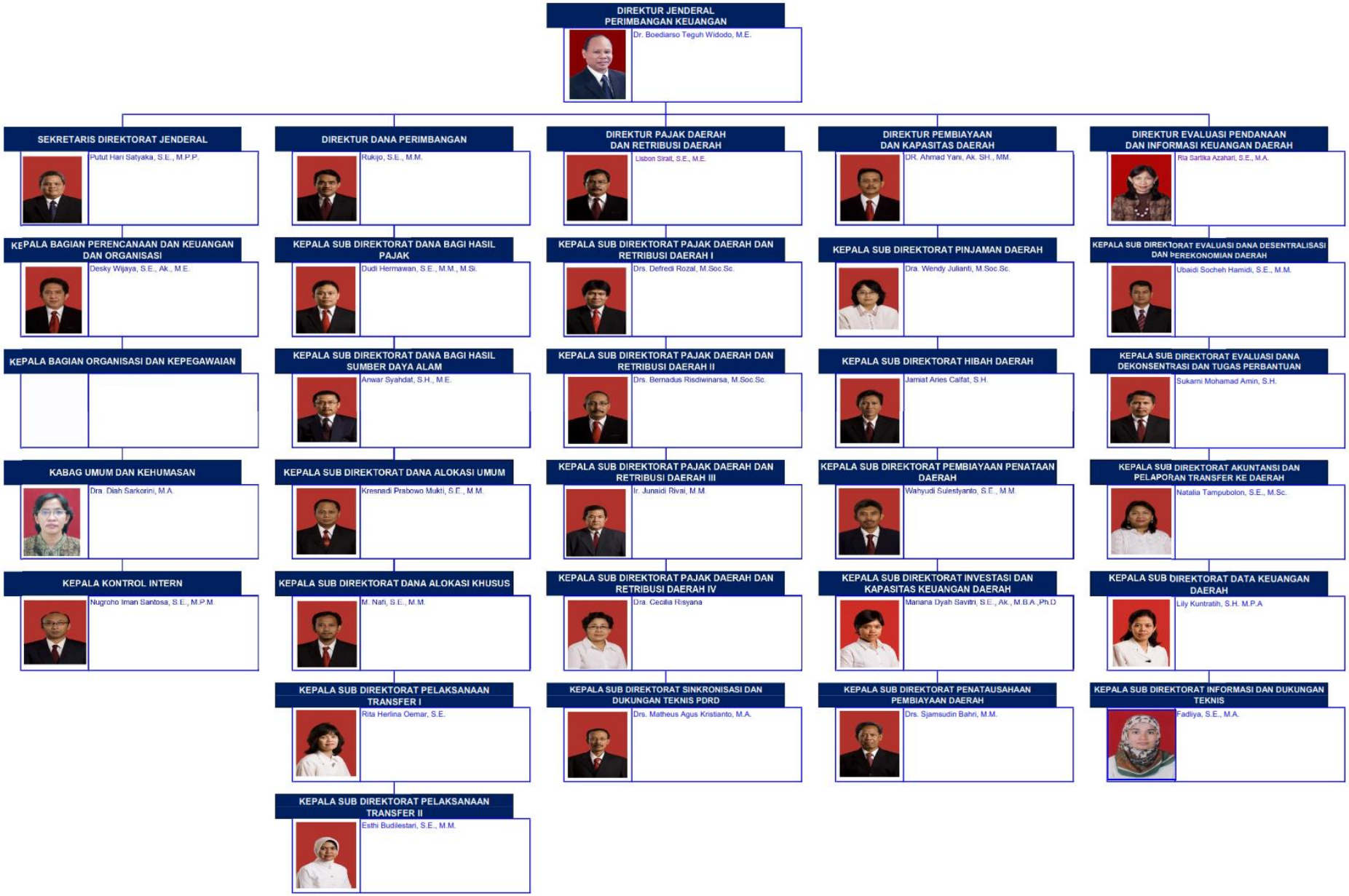
Visi

- Menjadi Pengelola Hubungan Fiskal Pusat dan Daerah Berkelas Dunia Yang Adil dan Transparan

Misi

- Mewujudkan perumusan kebijakan hubungan keuangan pusat dan daerah yang transparan dan akuntabel
- Melaksanakan monitoring dan evaluasi pelaksanaan hubungan keuangan pusat dan daerah yang efektif
- Menyelenggarakan sistem informasi keuangan daerah yang akurat, transparan, dan tepat waktu
- Meningkatkan kualitas pengelolaan keuangan daerah

Organization Decomposition Diagram DJPK



Business Model Canvas

Direktorat Jenderal Perimbangan Keuangan

Key Partners

- Kementerian/ Lembaga
- DPR/DPD
- Unit Eselon I Kementerian Keuangan
- BPK
- BPKP
- BI
- APH
- Pemerintahan Daerah
- Media Masa
- Universitas

Key Activities

- Perumusan Kebijakan dan Perencanaan HKPD
- Penganggaran dan Pengalokasian Dana Transfer ke Daerah, Dana Desa, dan Hibah Daerah
- Peningkatan Kapasitas Keuangan Daerah
- Pelaksanaan dan Penatausahaan Transfer ke Daerah, Dana Desa, dan Hibah Daerah
- Penyelenggaraan SIKD
- Monitoring dan Evaluasi Pengelolaan HKPD

Key Resources

- Informasi dan Data
- SOP
- SDM
- Rencana Strategis
- Aset/ Infrastruktur
- Kode Etik
- Peraturan Perundang-undangan
- Anggaran

Value Propositions

- Menjadi *one source* data untuk keuangan daerah di level nasional
- Pembina jabatan fungsional analis keuangan pusat dan daerah
- Kewenangan sebagai penyedia layanan terpadu keuangan daerah (RPTKD)
- Menjadi model monitoring dan evaluasi hubungan keuangan pusat dan daerah
- Kewenangan perumusan formulasi kebijakan desentralisasi fiskal
- Kewenangan alokasi dan pelaksanaan transfer ke daerah dan dana desa
- Memegang teguh nilai-nilai kementerian keuangan (integritas, professionalme, pelayanan, sinergi, kesempurnaan)

Customer Relationships

- Offline: Sosialisasi, Korespondensi, Koordinasi, Supervisi, Workshop, Bimbingan Teknis, Ruang Pelayanan Terpadu, Kotak Saran, Site Visit
- Online: Situs djpk.depkeu.go.id, Call Center, Help Desk.

Channels

- Email
- SIKD
- Media Defis
- Telepon
- Website
- Social Media (Facebook, Twitter)

Customer Segments

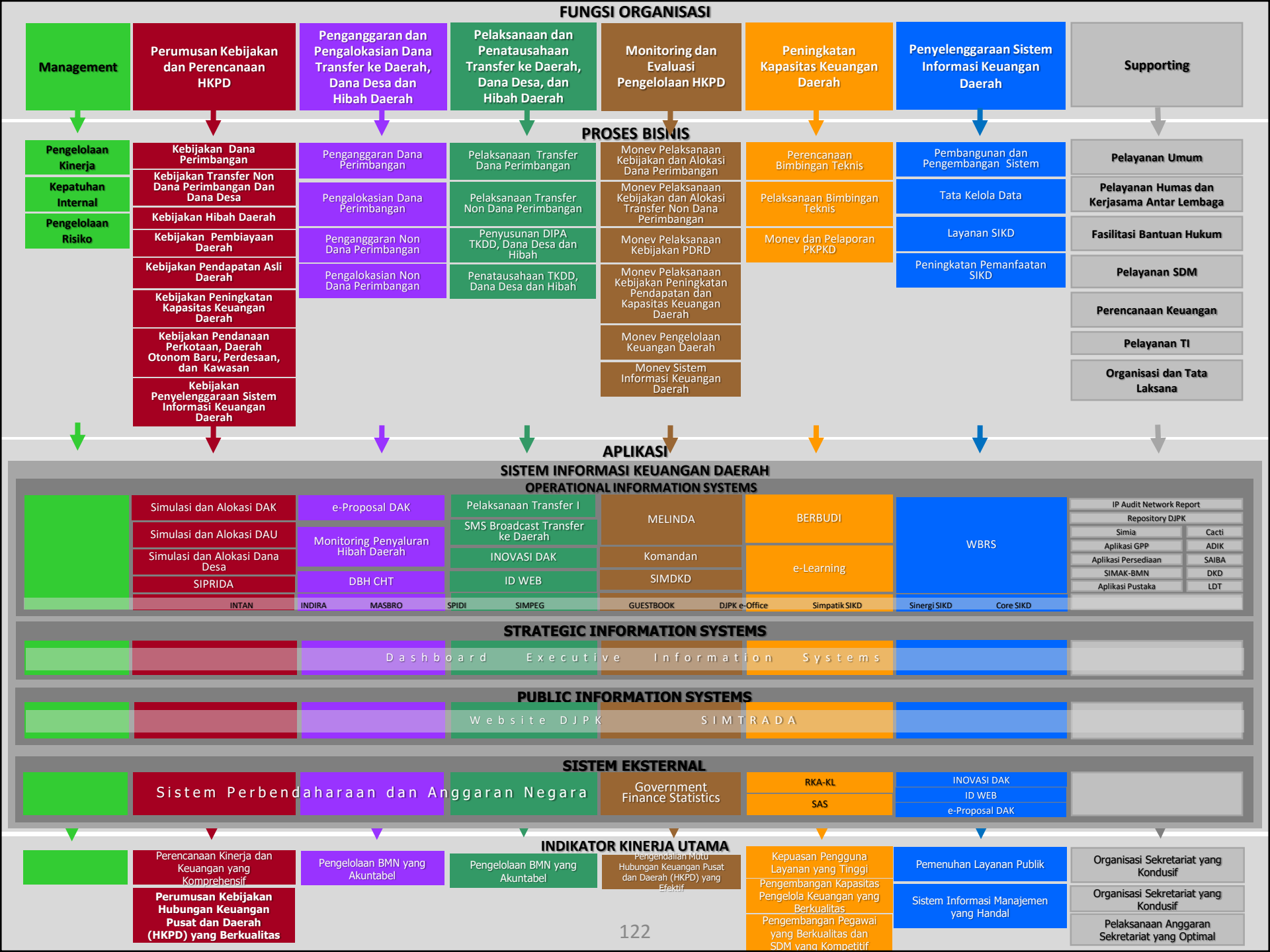
- Kementerian/ Lembaga
- Pemerintahan Daerah
- Masyarakat
- Akademisi
- Desa
- Guru
- Sekolah
- Puskesmas

Cost Structure

- Belanja Pegawai
- Belanja Barang dan Jasa
- Belanja Modal

Revenue Streams

- APBN
- Donor


FUNGSI ORGANISASI
Management
Perumusan Kebijakan dan Perencanaan HKPD
Penganggaran dan Pengalokasian Dana Transfer ke Daerah, Dana Desa dan Hibah Daerah
Pelaksanaan dan Penatausahaan Transfer ke Daerah, Dana Desa, dan Hibah Daerah
Monitoring dan Evaluasi Pengelolaan HKPD
Peningkatan Kapasitas Keuangan Daerah
Penyelenggaraan Sistem Informasi Keuangan Daerah
Supporting
PROSES BISNIS
Pengelolaan Kinerja
Kepatuhan Internal
Pengelolaan Risiko
Kebijakan Dana Perimbangan
Kebijakan Transfer Non Dana Perimbangan Dan Dana Desa
Kebijakan Hibah Daerah
Kebijakan Pembiayaan Daerah
Kebijakan Pendapatan Asli Daerah
Kebijakan Peningkatan Kapasitas Keuangan Daerah
Kebijakan Pendanaan Perkotaan, Daerah Otonom Baru, Perdesaan, dan Kawasan
Kebijakan Penyelenggaraan Sistem Informasi Keuangan Daerah
Penganggaran Dana Perimbangan
Pengalokasian Dana Perimbangan
Penganggaran Non Dana Perimbangan
Pengalokasian Non Dana Perimbangan
Pelaksanaan Transfer Dana Perimbangan
Pelaksanaan Transfer Non Dana Perimbangan
Penyusunan DIPA TKDD, Dana Desa dan Hibah
Penatausahaan TKDD, Dana Desa dan Hibah
Monev Pelaksanaan Kebijakan dan Alokasi Dana Perimbangan
Monev Pelaksanaan Kebijakan dan Alokasi Transfer Non Dana Perimbangan
Monev Pelaksanaan Kebijakan PDRD
Monev Pelaksanaan Kebijakan Peningkatan Pendapatan dan Kapasitas Keuangan Daerah
Monev Pengelolaan Keuangan Daerah
Monev Sistem Informasi Keuangan Daerah
Perencanaan Bimbingan Teknis
Pelaksanaan Bimbingan Teknis
Monev dan Pelaporan PKPKD
Pembangunan dan Pengembangan Sistem
Tata Kelola Data
Layanan SIKD
Peningkatan Pemanfaatan SIKD
Pelayanan Umum
Pelayanan Humas dan Kerjasama Antar Lembaga
Fasilitasi Bantuan Hukum
Pelayanan SDM
Perencanaan Keuangan
Pelayanan TI
Organisasi dan Tata Laksana
APLIKASI
SISTEM INFORMASI KEUANGAN DAERAH
OPERATIONAL INFORMATION SYSTEMS
Simulasi dan Alokasi DAK
Simulasi dan Alokasi DAU
Simulasi dan Alokasi Dana Desa
SIPRIDA
e-Proposal DAK
Monitoring Penyaluran Hibah Daerah
DBH CHT
Pelaksanaan Transfer I
SMS Broadcast Transfer ke Daerah
INOVASI DAK
ID WEB
MELINDA
Komandan
SIMDKD
BERBUDI
e-Learning
WBRS
IP Audit Network Report
Repository DJPK
Simia
Cacti
Aplikasi GPP
ADIK
Aplikasi Persediaan
SAIBA
SIMAK-BMN
DKD
Aplikasi Pustaka
LDT
INTAN
INDIRA
MASBRO
SPIDI
SIMPEG
GUESTBOOK
DJPK e-Office
Simpatik SIKD
Sinergi SIKD
Core SIKD
STRATEGIC INFORMATION SYSTEMS
Dashboard Executive Information Systems
PUBLIC INFORMATION SYSTEMS
Website DJPK
SIMTRADA
SISTEM EKSTERNAL
Sistem Perbendaharaan dan Anggaran Negara
Government Finance Statistics
RKA-KL
SAS
INOVASI DAK
ID WEB
e-Proposal DAK
INDIKATOR KINERJA UTAMA
Perencanaan Kinerja dan Keuangan yang Komprehensif
Perumusan Kebijakan Hubungan Keuangan Pusat dan Daerah (HKPD) yang Berkualitas
Pengelolaan BMN yang Akuntabel
Pengelolaan BMN yang Akuntabel
Pengendalian Mutu Hubungan Keuangan Pusat dan Daerah (HKPD) yang Efektif
Kepuasan Pengguna Layanan yang Tinggi
Pengembangan Kapasitas Pengelola Keuangan yang Berkualitas
Pengembangan Pegawai yang Berkualitas dan SDM yang Kompetitif
Pemenuhan Layanan Publik
Sistem Informasi Manajemen yang Handal
Organisasi Sekretariat yang Kondusif
Organisasi Sekretariat yang Kondusif
Pelaksanaan Anggaran Sekretariat yang Optimal

Visi dan Misi

Visi

- Fakultas Ilmu Komputer Unsri pada tahun 2020 menjadi program pendidikan bidang Teknologi Informasi dan Komunikasi yang bermutu, relevan dan memiliki daya saing yang tinggi dalam penyelenggaraan tridharma.

Misi

- Menyelenggarakan akademik, manajemen dan keuangan secara efisien, efektif, berkualitas dan otonom.
- Menciptakan organisasi yang sehat dan suasana akademik yang kondusif.
- Memberikan kontribusi pada daya saing bangsa dan pengembangan masyarakat madani.

Business Model Canvas

Fakultas Ilmu Komputer UNSRI

Key Partners

- Universitas dan Unit Kerja Dibawahnya
- Alumni
- Industry
- DIKTI
- BAN-PT
- ISP
- Universitas Lainya
- Pemda

Key Activities

- Pengajaran dan Pendidikan
- Penunjang
- Penelitian
- Pengabdian kepada Masyarakat

Key Resources

- Kurikulum
- Dosen
- Pegawai
- Mahasiswa
- Laboratorium Riset dan Lab Praktikum
- Prodi
- Sarana dan Prasarana

Value Propositions

- Kurikulum Internasional Standar ACM
- Integrasi Kurikulum dengan Sertifikasi Internasional
- Mahasiswa Terseleksi dengan Ketat
- Memiliki Jurnal Internasional Terakreditasi DIKTI
- Kerjasama Program dengan Universitas Luar Negeri

Customer Relationships

- Promosi ke Stakeholders
- Tracer Study Alumni
- Seminar, Workshop dan Pelatihan

Channels

- Email
- Telepon
- Website
- Fax
- Surat Kabar
- Social Media (Facebook, Twitter)

Customer Segments

- Siswa SMA/SMK
- Mahasiswa S1
- Guru Sekolah Menengah

Cost Structure

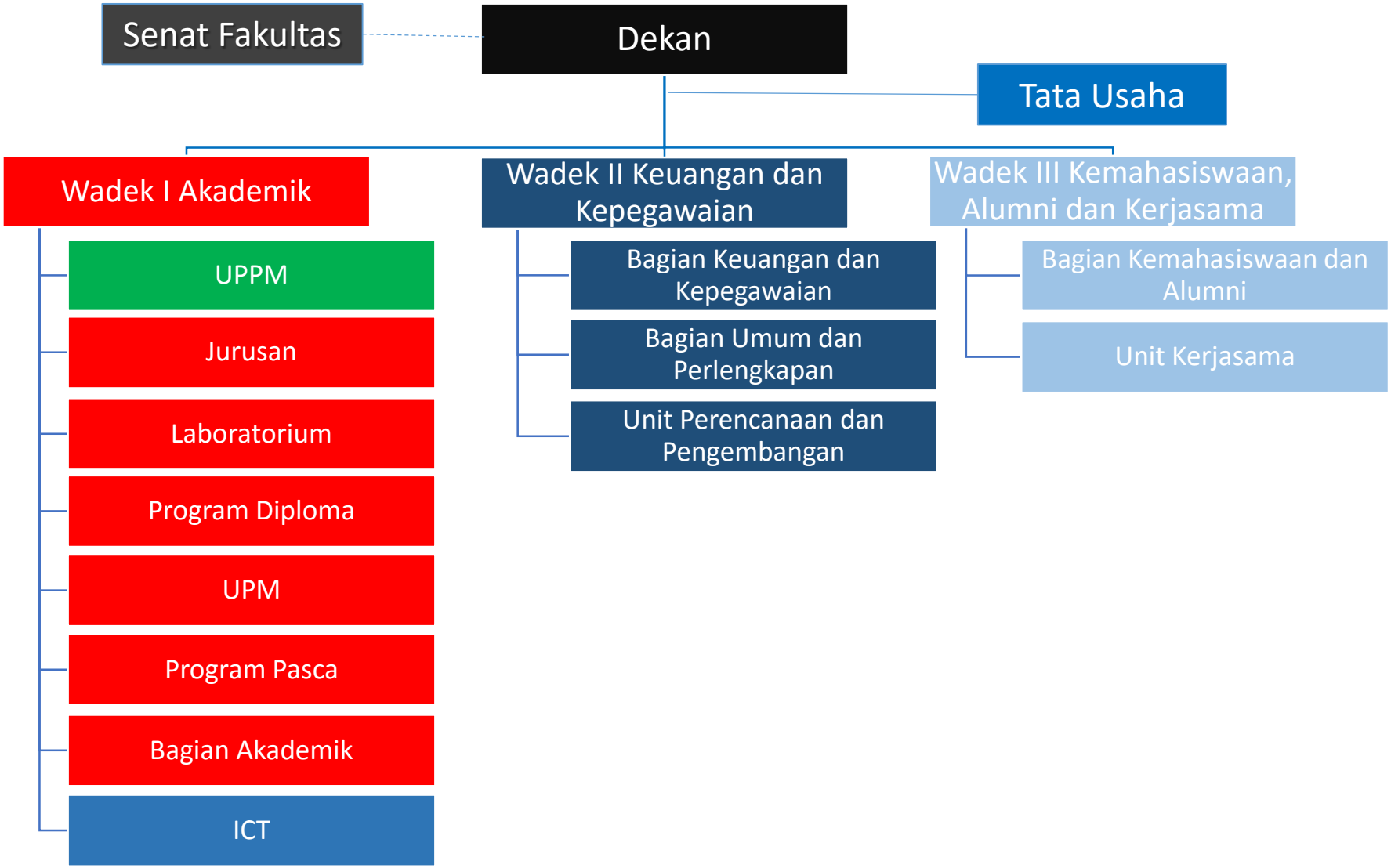
- Honor Pegawai kontrak
- Honor Penelitian dan Pengabdian Dosen
- Biaya Promosi
- Pembangunan Infrastruktur
- Biaya Operasional
- Biaya Pengembangan SDM
- Pembiayaan Hibah Penelitian dan Pengabdian

Revenue Streams

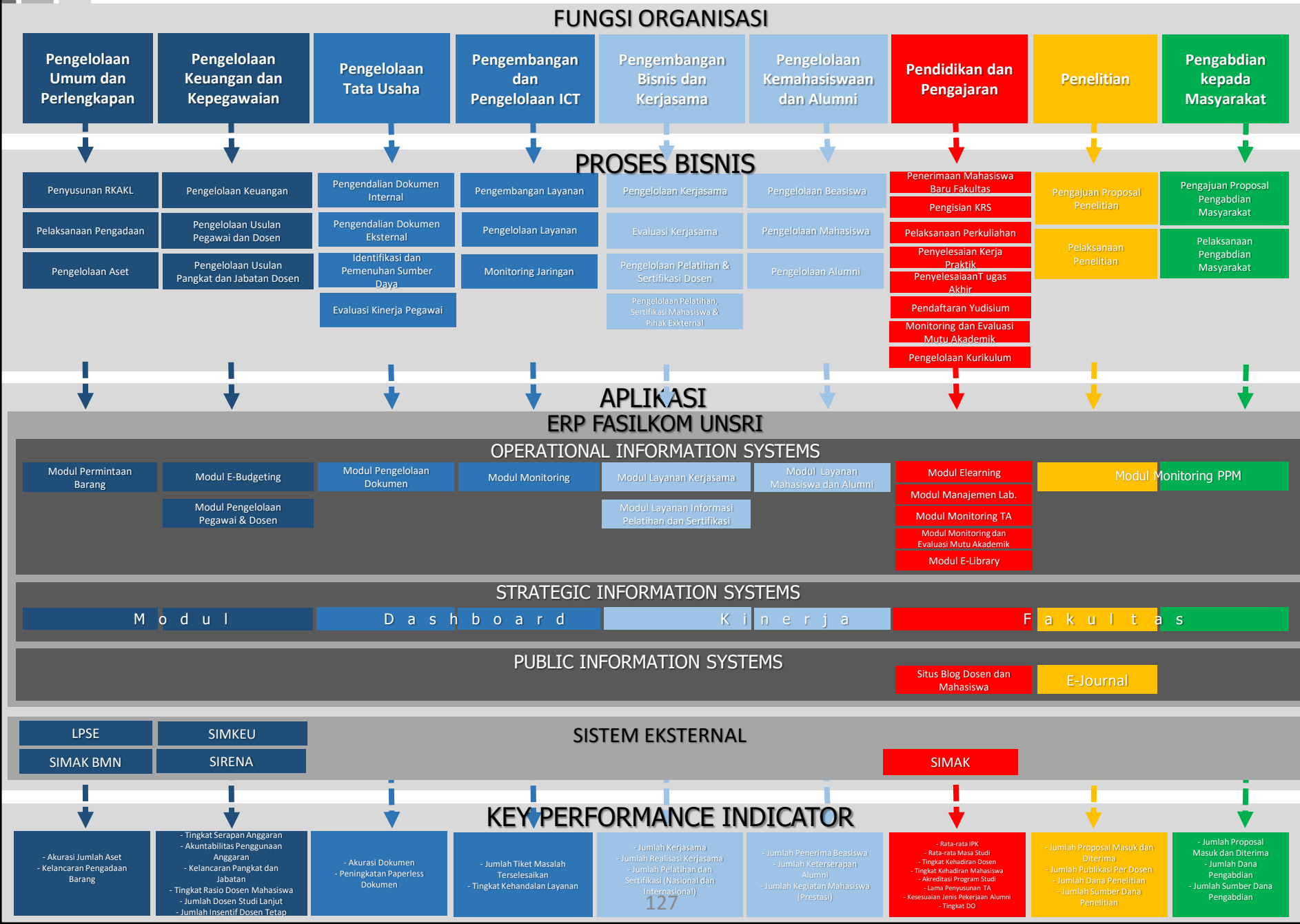
- Hibah Penelitian dan Pengabdian
- Proyek Kerjasama
- BOPTN
- Hibah (CSR)
- SPP (PNBP)
- APBN


Primary Activity
Pengabdian kepada Masyarakat
Pendidikan dan Pengajaran
Penelitian
Supporting Activity
Pengelolaan Umum dan Perlengkapan
Pengelolaan Tata Usaha
Pengembangan Kerjasama
Pengelolaan Keuangan dan Kepegawaian
Pengembangan dan Pengelolaan ICT
Pengelolaan Kemahasiswaan dan Alumni
Bermutu, Relevan dan Daya Saing Tinggi

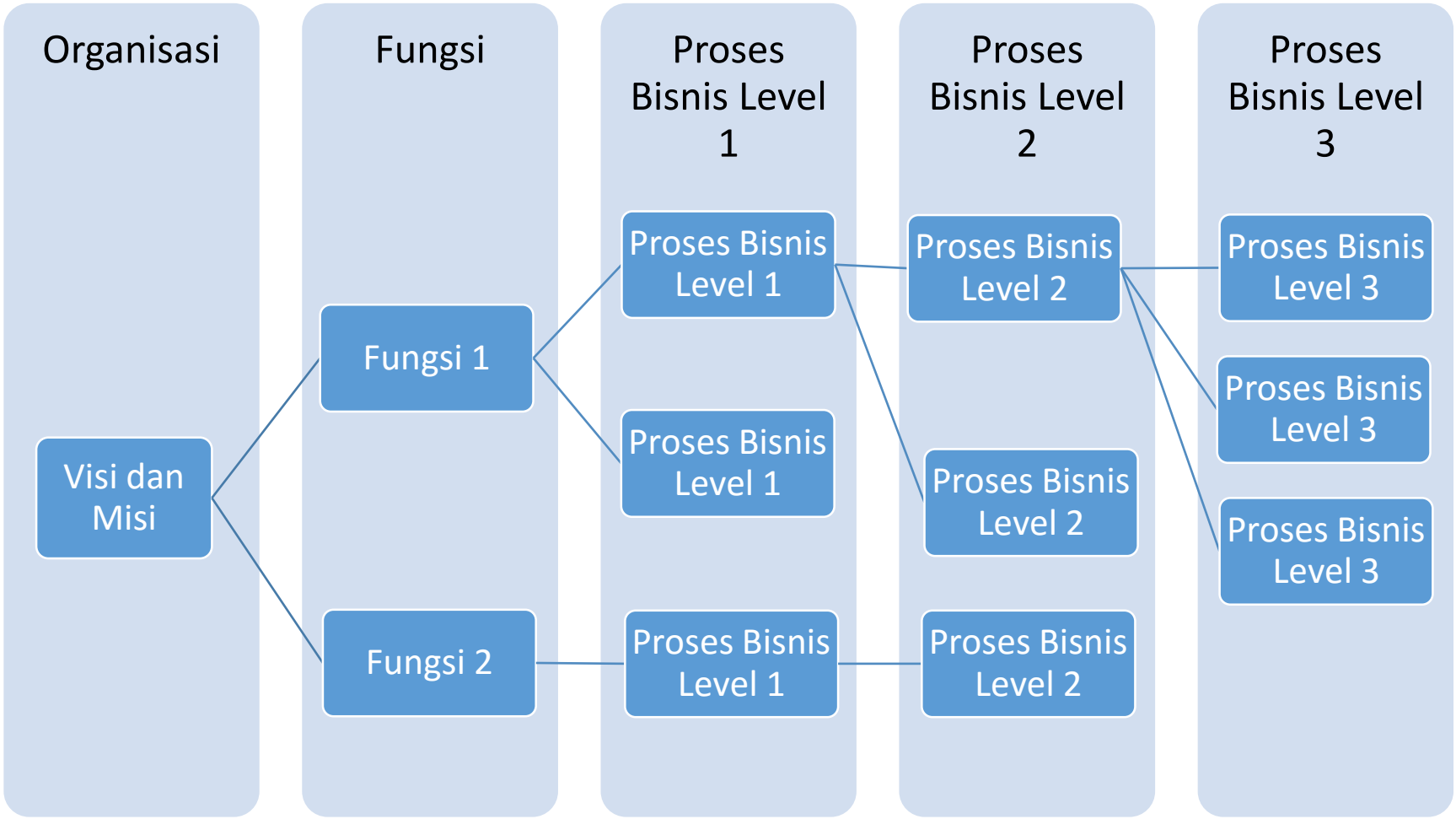
Organization Decomposition Diagram



Solution Concept Diagram (Target)



Hierarki Organisasi – Fungsi – Proses Bisnis



EA - Business Architecture

Functional Decomposition Diagram

SUPPORTING ACTIVITIES		PRIMARY ACTIVITIES		
Pengembalian Biaya Training	Penerimaan Magang	Pengembangan Software	Pelaksanaan Training	Pemasaran Training
Pinjaman Karyawan	Penerimaan Pegawai	Pengembangan Enterprise Architecture	Pelaksanaan Ujian	Monitoring Tender
Penggajian Karyawan	Pengajuan Cuti	Maintenance Software	Maintenance Infrastruktur	
Belanja Bulanan	Pengunduran Diri	Maintenance Enterprise Architecture		
Pembayaran Honor Instruktur	Monitoring Pendidikan			
Penagihan Pembayaran				

BRAINMATICS

Business Interaction Matrix

	Finance Division	Human Resource Division	Development Division	Training Division	Marketing Division
Finance Division		Request budget	Request budget	Request budget	Request budget
Human Resource Division	Apply for staffing issues		Apply for staffing issues	Apply for staffing issues	Apply for staffing issues
Development Division	Request systems and maintenance	Request systems and maintenance		Request systems and maintenance	Request systems and maintenance
Training Division	Request infrastructure maintenance	Request infrastructure maintenance	Request infrastructure maintenance		Request product knowledge
Marketing Division			Apply for software product marketing	Apply for training product marketing	

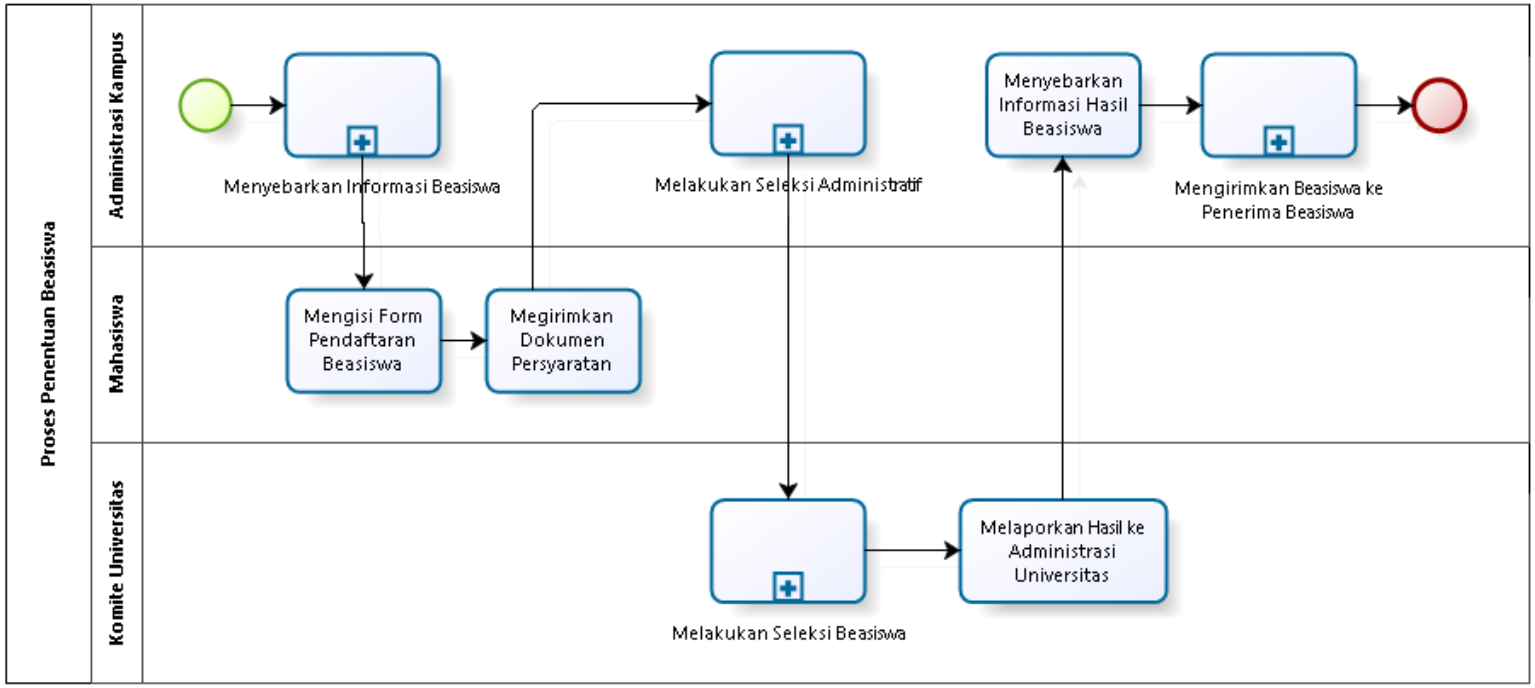
Organization/Actor Catalog

Organization	Actor
Finance Division	Financial Manager
Human Resource Division	Human Resource Manager
	Employee
	Assistant
Development Division	Development Manager
	Project Manager
	Programmer
Training Division	Training Manager
	Trainer
	Participant
Marketing Division	Marketing Manager
	Marketer
	Customer

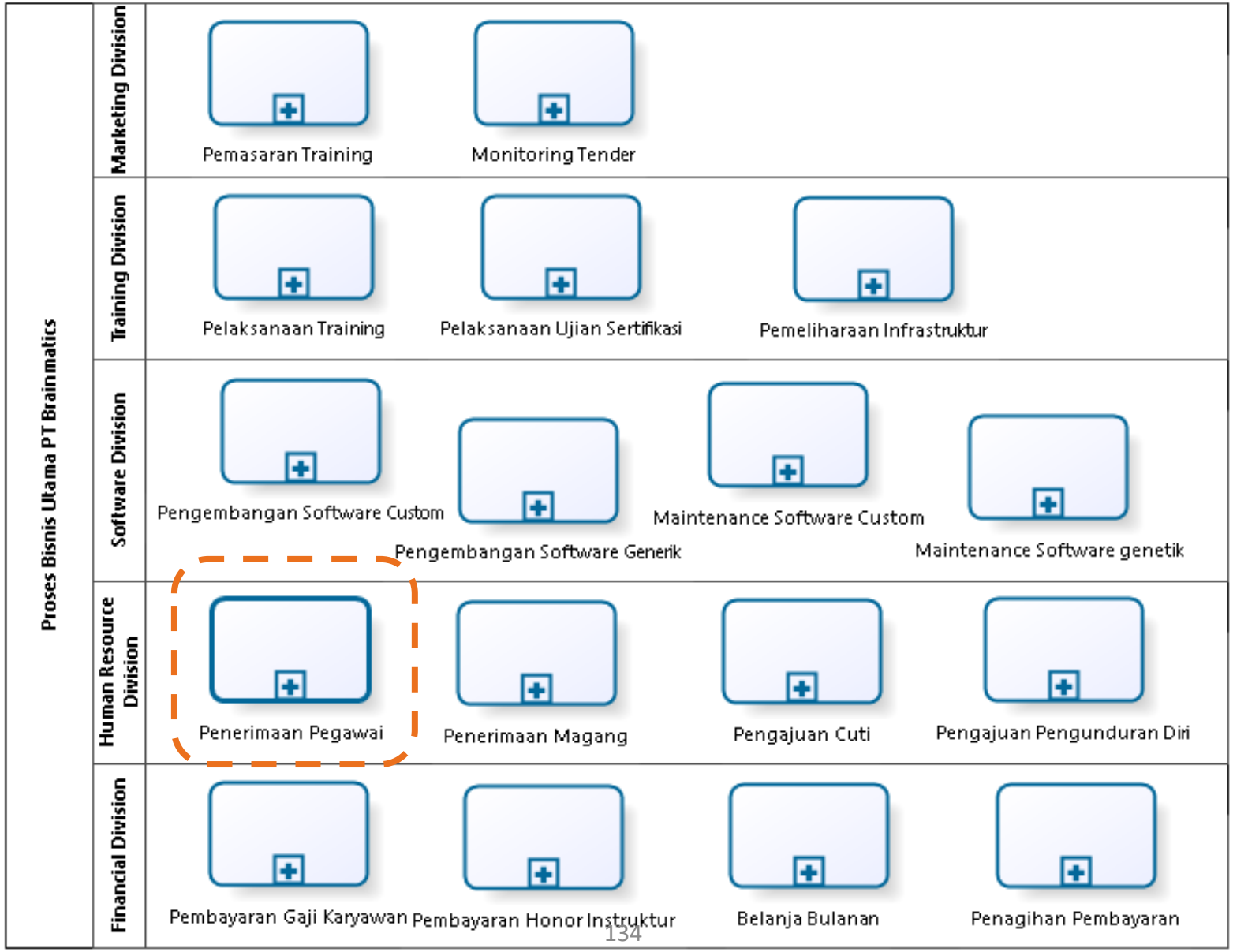
Business Process Model and Notation (BPMN)

Notasi standard untuk pemodelan proses bisnis

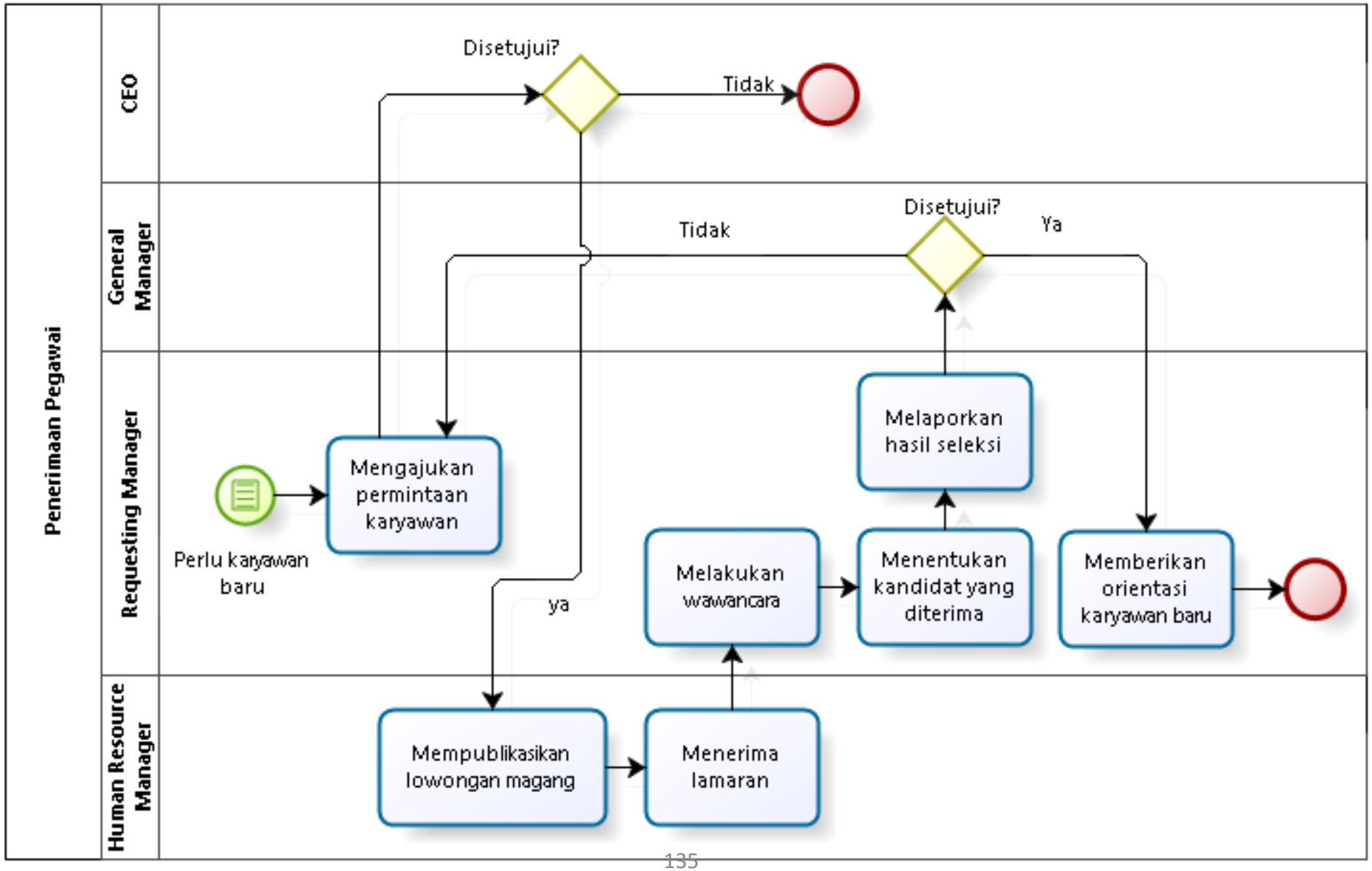
- Object Management Group (OMG))
- Permenpan No 12 Tahun 2011 tentang Pedoman Penataan Tata Laksana (*Business Process*)



General Business Process Diagram (Level 0)
Adhoc Version



Human Resource Division (Level 1): Penerimaan Pegawai



Business Interaction Matrix

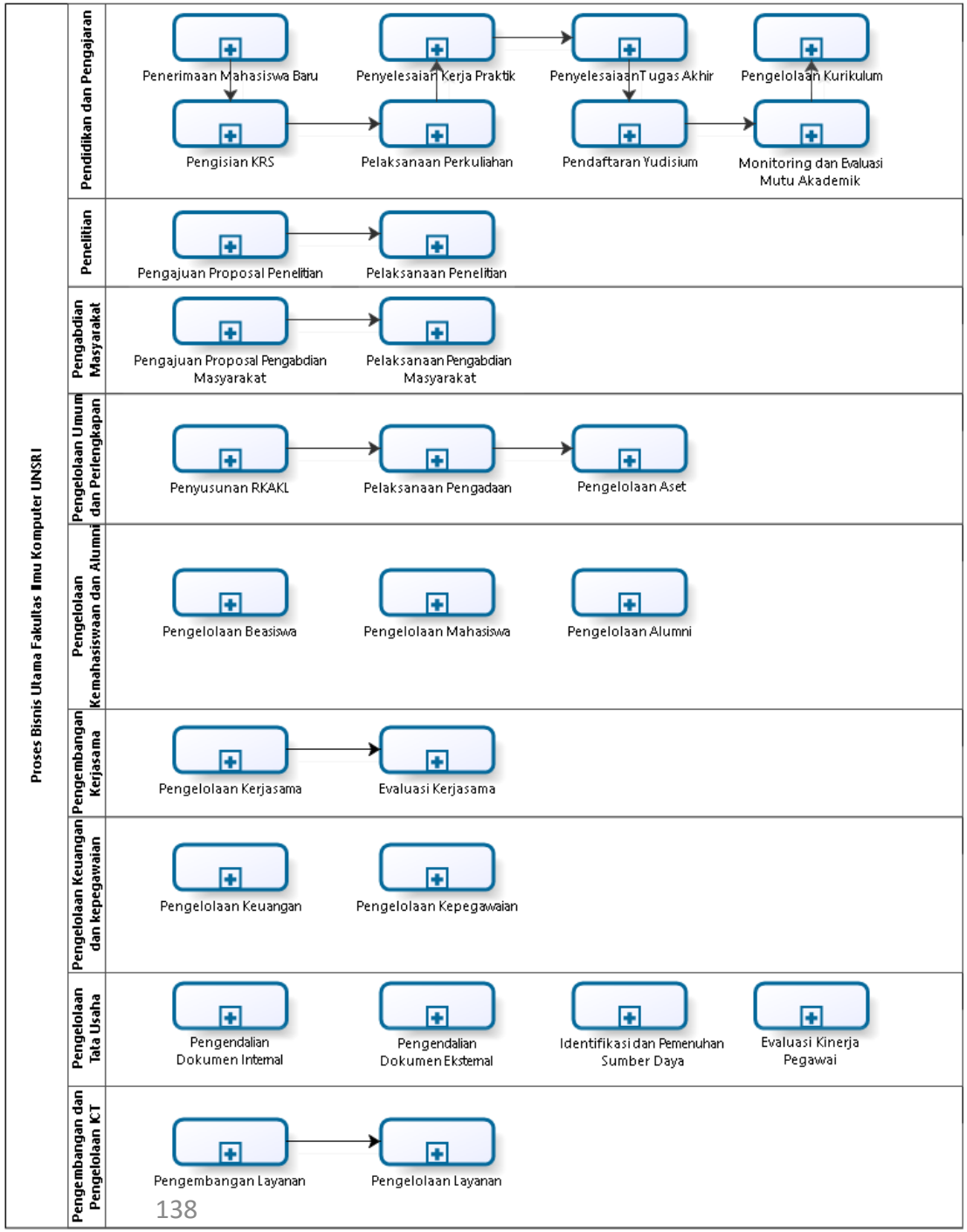
	Pengabdian kepada Masyarakat	Pendidikan dan Pengajaran	Penelitian	Pengelolaan Umum dan Perlengkapan	Pengelolaan Kemahasiswaan dan Alumni	Pengembangan Bisnis dan Kerjasama	Pengelolaan Keuangan dan kepegawaian	Pengelolaan Tata Usaha	Pengembangan dan Pengelolaan ICT
Pengabdian kepada Masyarakat						Mempromosikan Inovasi dan teknologi yang dihasilkan	Meningkatkan pendapatan Fakultas		
Pendidikan dan Pengajaran	Menerapkan Inovasi Pengajaran Sekolah					Mempromosikan Inovasi dan teknologi pengjaran			
Penelitian	Menerapakan hasil penelitian kepada Masyarakat	Pembaharuan Bahan Ajar				Mempromosikan Inovasi dan teknologi yang dihasilkan Penelitian			
Pengelolaan Umum dan Perlengkapan	Meminta Barang dan Peralatan	Meminta Barang dan Peralatan	Meminta Barang dan Peralatan		Meminta Barang dan Peralatan	Meminta Barang dan Peralatan	Permintaan Barang dan Peralatan	Permintaan Barang dan Peralatan	Permintaan Barang dan Peralatan
Pengelolaan Kemahasiswaan dan Alumni	Meminta Asistensi					Meminta Profile Mahasiswa dan Alumni			
Pengembangan Kerjasama	Permintaan MoA	Permintaan MoA	Permintaan MoA						
Pengelolaan Keuangan dan kepegawaian	Permintaan Pendanaan	Permintaan Pendanaan	Permintaan Pendanaan	Permintaan Pendanaan	Permintaan Pendanaan	Permintaan Pendanaan		Permintaan Pendanaan	
Pengelolaan Tata Usaha	Permintaan surat Pengantar	Permintaan surat Pengantar	Permintaan surat Pengantar		Permintaan surat Pengantar	Permintaan surat Pengantar			Permintaan surat Pengantar
Pengembangan dan Pengelolaan ICT	Permintaan Aplikasi, Publikasi	Permintaan Aplikasi dan Perawatan	Permintaan Aplikasi, Publikasi	Permintaan Aplikasi	Permintaan Aplikasi, Peratawan Aplikasi dan	Permintaan Aplikasi, Peratawan Aplikasi dan	Permintaan Aplikasi, Peratawan Aplikasi dan	Permintaan Aplikasi, Peratawan Aplikasi dan	

Function/Actor Catalog

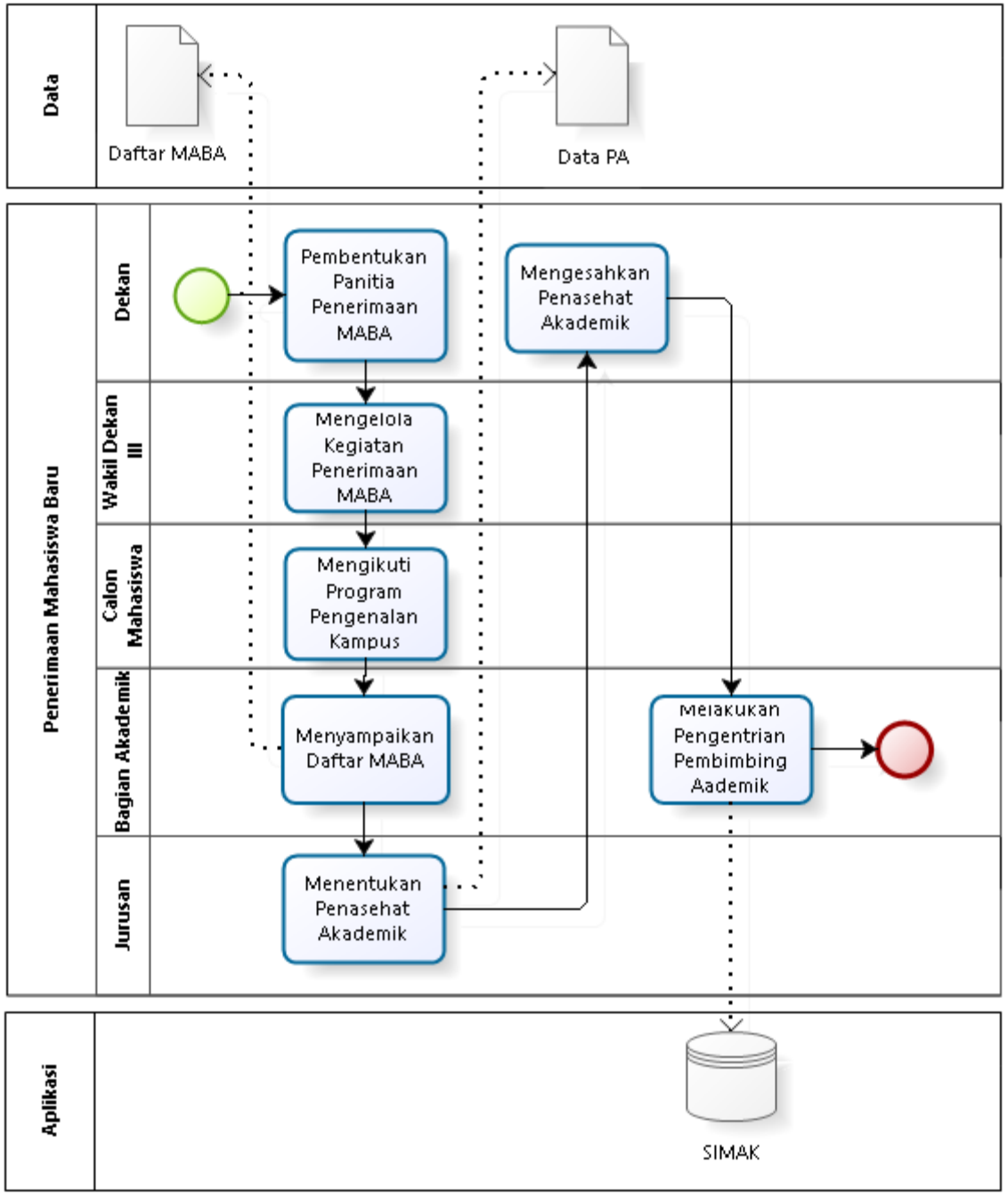
Function	Actor					
Pendidikan dan Penajaran	Bagian Akademik	Dosen	Ketua Jurusan	Subag Akademik	Tim Auditor	Wadek I
	Calon Mahasiswa	Dosen PA	Mahasiswa	Subag Keahasiswaan	Unit Kerja	Wadek III
	Dekan	Laboratorium	Stakeholder	Tata Usaha	UPM	
Penelitian	Dekan	Dosen	Subag Keuangan	UPPM		
Pengabdian Masyarakat	Dekan	Dosen	Subag Keuangan	UPPM		
Pengelolaan Umum dan Perlengkapan	Bagian Umum dan Perlengkapan	Panitia Pengadaan	Pejabat Pengadaan	Subag Keuangan		
	Dekan	Wadek III	PD2 / PPK	Unit Kerja		
Pengelolaan Kemahasiswaan dan Alumni	Mahasiswa	Dekan	Wakil Rektor III	Subag Kemahasiswaan	Tata Usaha	
	Alumni	Wadek II	Wadek III	Subag Keuangan		
Pengembangan Kerjasama	Dekan	Wadek III	UnitKerja			
Pengelolaan Keuangan dan Kepegawaian	Dekan	Jurusan	Senat Fakultas	Subag Kepegawaian	UPPM	Unit Kerja
	Dosen dan Pegawai	PPK	Bendahara Pembantu	Subag Keuangan dan Kepegawaian	Tata Usaha	
Pengelolaan Tata Usaha	Asesor	Dekan	Wakil Dekan	Dosen	Jurusan/Prodi	Diploma
	Pegawai	Tata Usaha	Unit Pelaksana Teknis	Unit	Sub Bagian	
	Subag Kemahasiswaan	Subag Akademik	Subag Keuangan dan Kepegawaian	Subag Umum dan Perlengkapan	Jurusan	
Pengembangan dan Pengelolaan ITC	Bagian ICT	Dosen	Laboran	Mahasiswa	Pegawai	Staf ITC
	Unit Perlengkapan	Wadek II				

Proses Bisnis Level 0

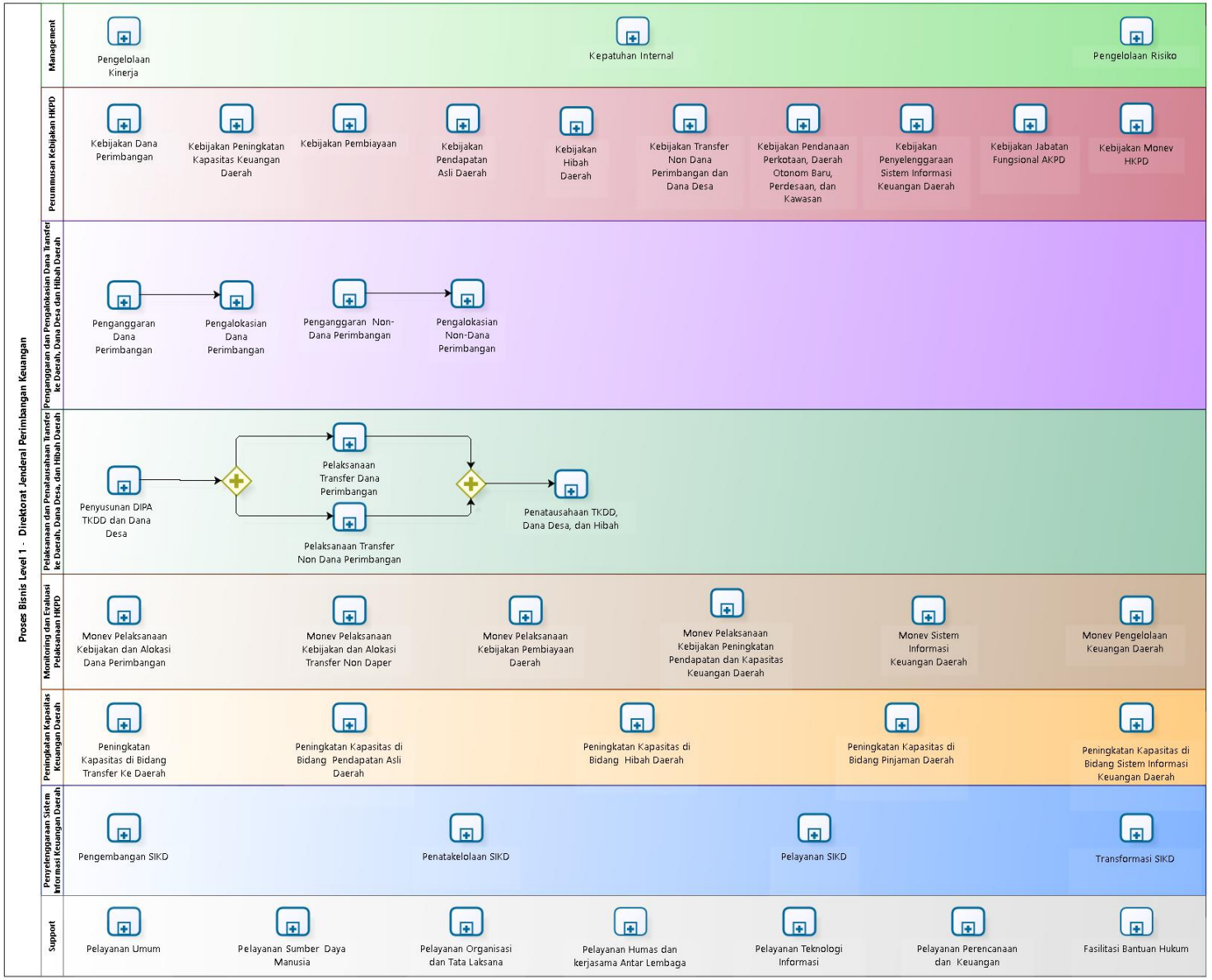
UNSRI



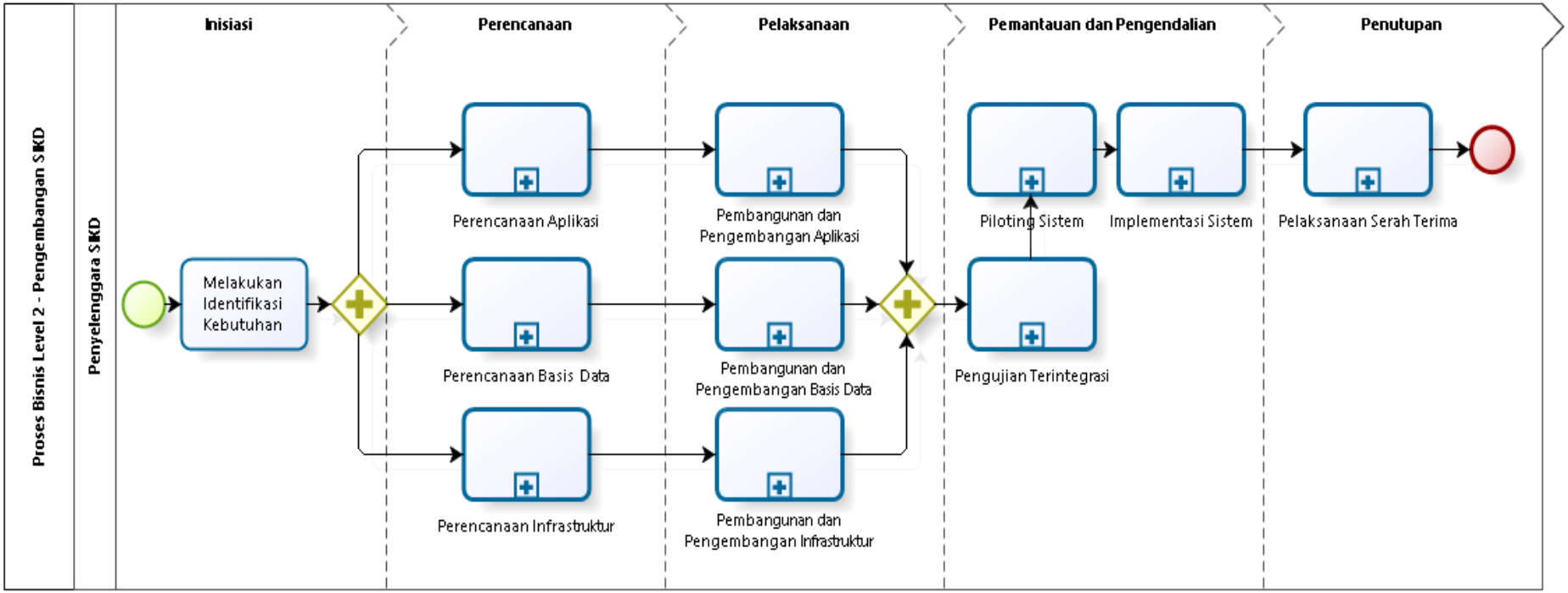
Proses Bisnis Pendidikan dan Pengajaran – Penerimaan Mahasiswa Baru (Level 1)



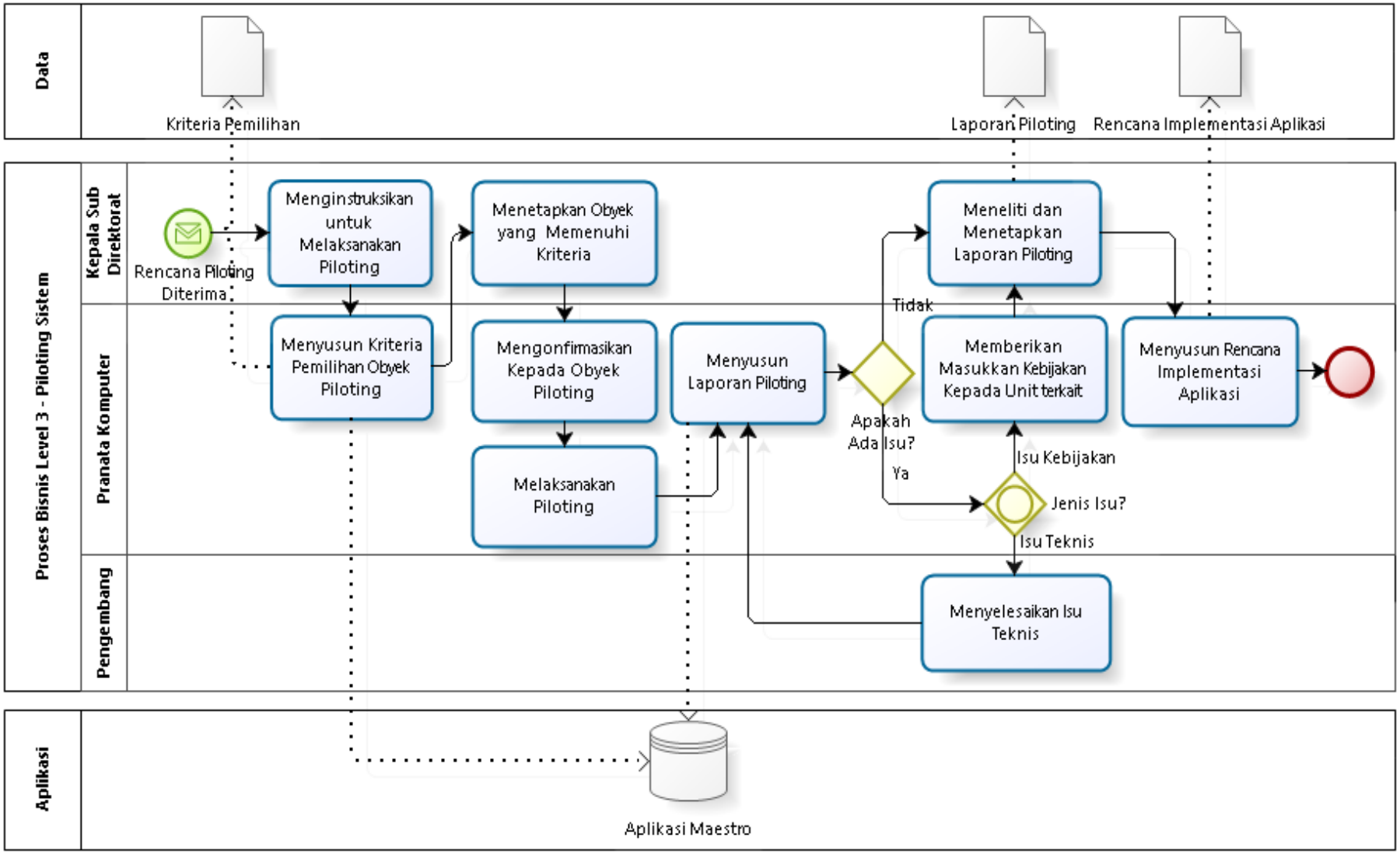
Bisnis Proses Level 1 DJPK



Bisnis Proses Level 2 DJPK



Bisnis Proses Level 3 DJPK



EA - Application Architecture

Application Portfolio Catalog

Organization	Application
Finance Division	Finance Module
Human Resource Division	Human Resource Module
Development Division	Project Management Module
Training Division	Training Management Module
Marketing Division	Customer Relationship Module

Application Portfolio Catalog

Organization	Application	Nilai Kelayakan	Komentar dan Saran
All Units	App 1 App 2 App 3	1 4 3	Banyak bug dan ga dibutuhkan Ribet pakainya Sebaiknya ditambahi fitur abc
Unit A	App 4 App 5 App 6		
Unit B	App 7		
Unit C	App 8 App 9		
Unit D	App 10		

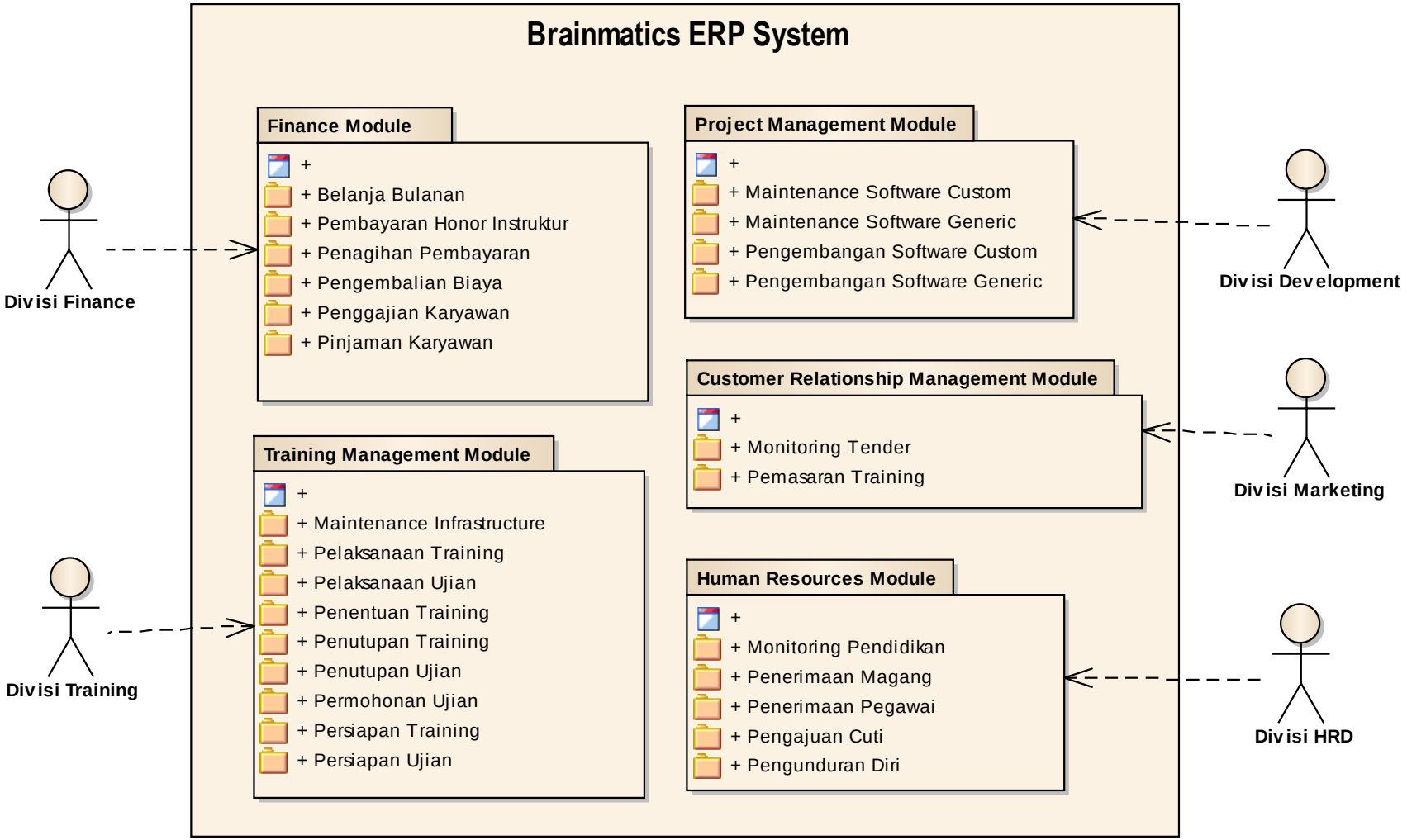
Application Portfolio Catalog

Function	Application		Nilai Kelayakan				Komentar	
			Kemanfaatan	Kemudahan	Kehandalan	Frekuensi Pemakaian		
Layanan Publik	Website Fakultas & Jurusan		3	3	3	3	Belum Digunakan	Baseline
Pendidikan dan Pengajaran	Sistem Informasi Kinerja Fakultas	SIMAK (UNSRI)	4	4	4	4		Baseline
		Blog Dosen	2	4	3	2		Baseline
		E-Learning	3	3	3	2		Baseline
		Facebook Page Fasilkom	4	4	4	4		Baseline
Penelitian		E-Journal	4	4	4	4		Baseline
Pengabdian Masyarakat								
Pengelolaan Umum dan Perlengkapan		SIMAK Barang Milik Negara (Kemenkeu) LPSE (UNSRI)						Baseline Baseline
Pengelolaan Kemahasiswaan dan Alumni		Tracer Study Alumni	4	3	3	4		Baseline
Pengembangan Kerjasama								
Pengelolaan Keuangan dan kepegawaian		SIMAK Keuangan (Kemenkeu) E-Budgeting	4	3	3	4		Baseline Target
Pengelolaan Tata Usaha								
Pengembangan dan Pengelolaan ICT								

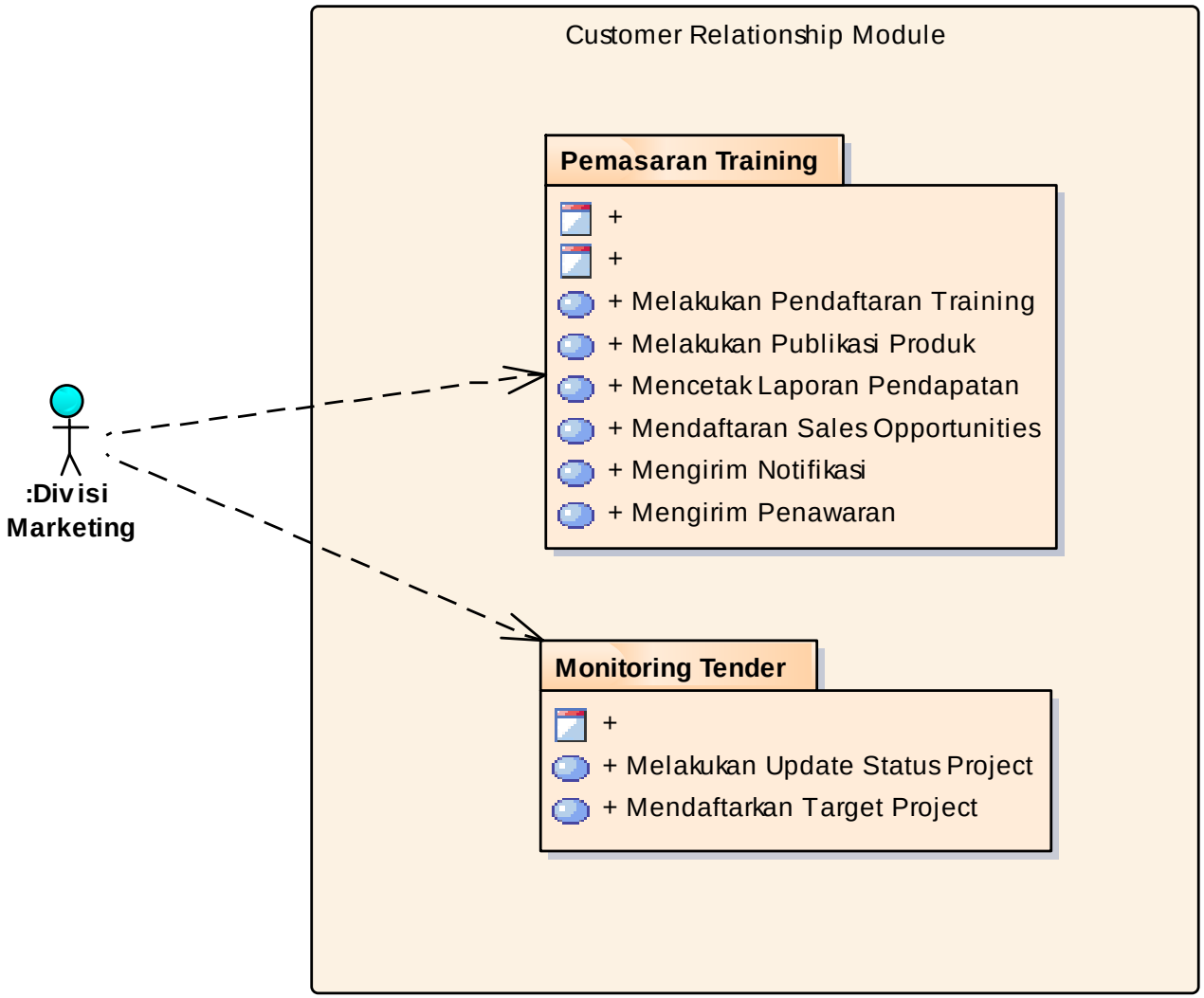
Gap Analysis

Target → Architecture / Baseline Architecture ↓	Video Conferencing Services	Enhanced Telephony Services	Mailing List Services	Eliminated Services ↓
Broadcast Services				Intentionally eliminated
Video Conferencing Services	Included			
Enhanced Telephony Services		Potential match		
Shared Screen Services				Unintentionally excluded - a gap in Target Architecture
New →		Gap: Enhanced services to be developed or produced	Gap: To be developed or produced	

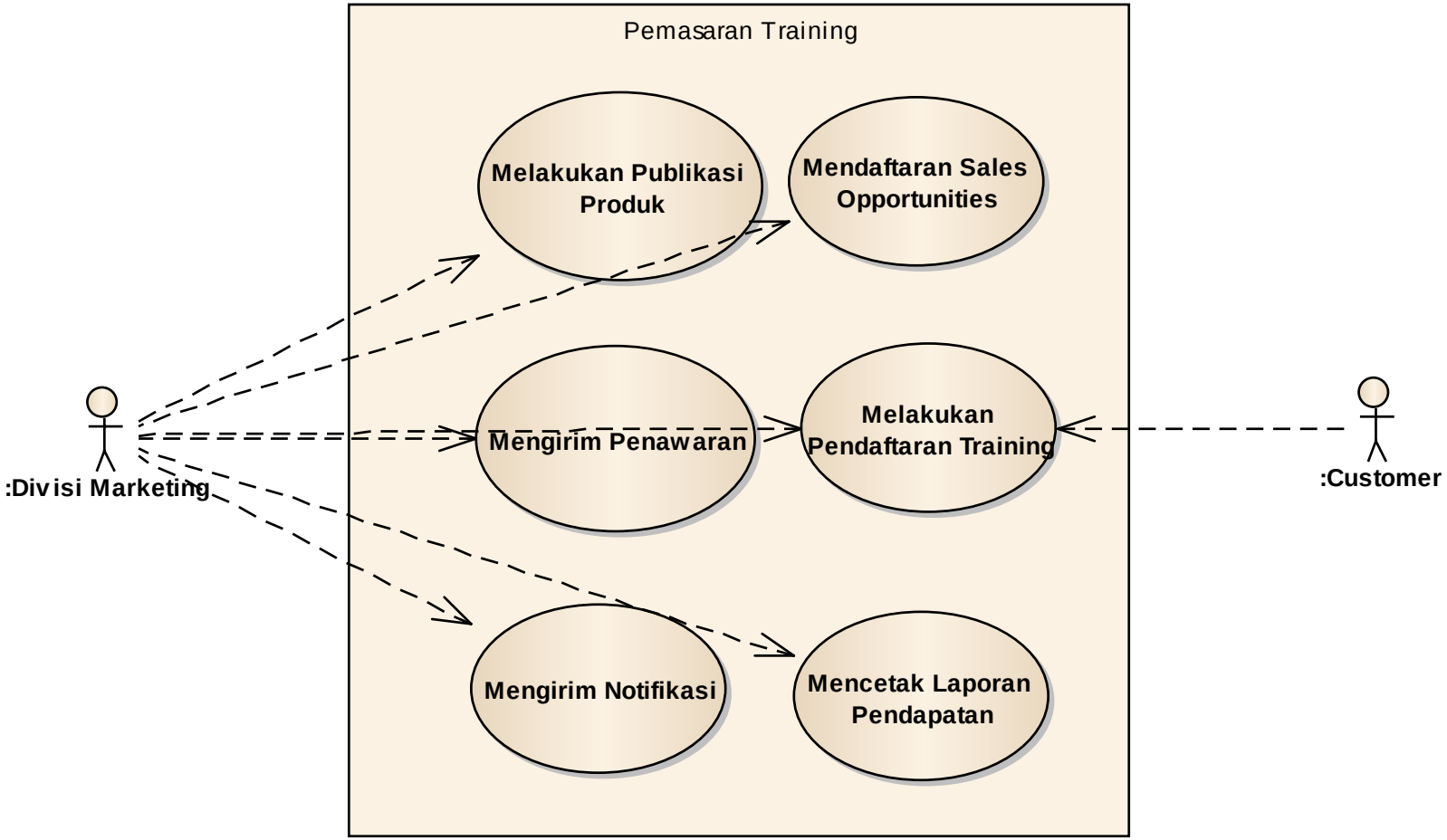
Application Use Case Diagram:
Global Package



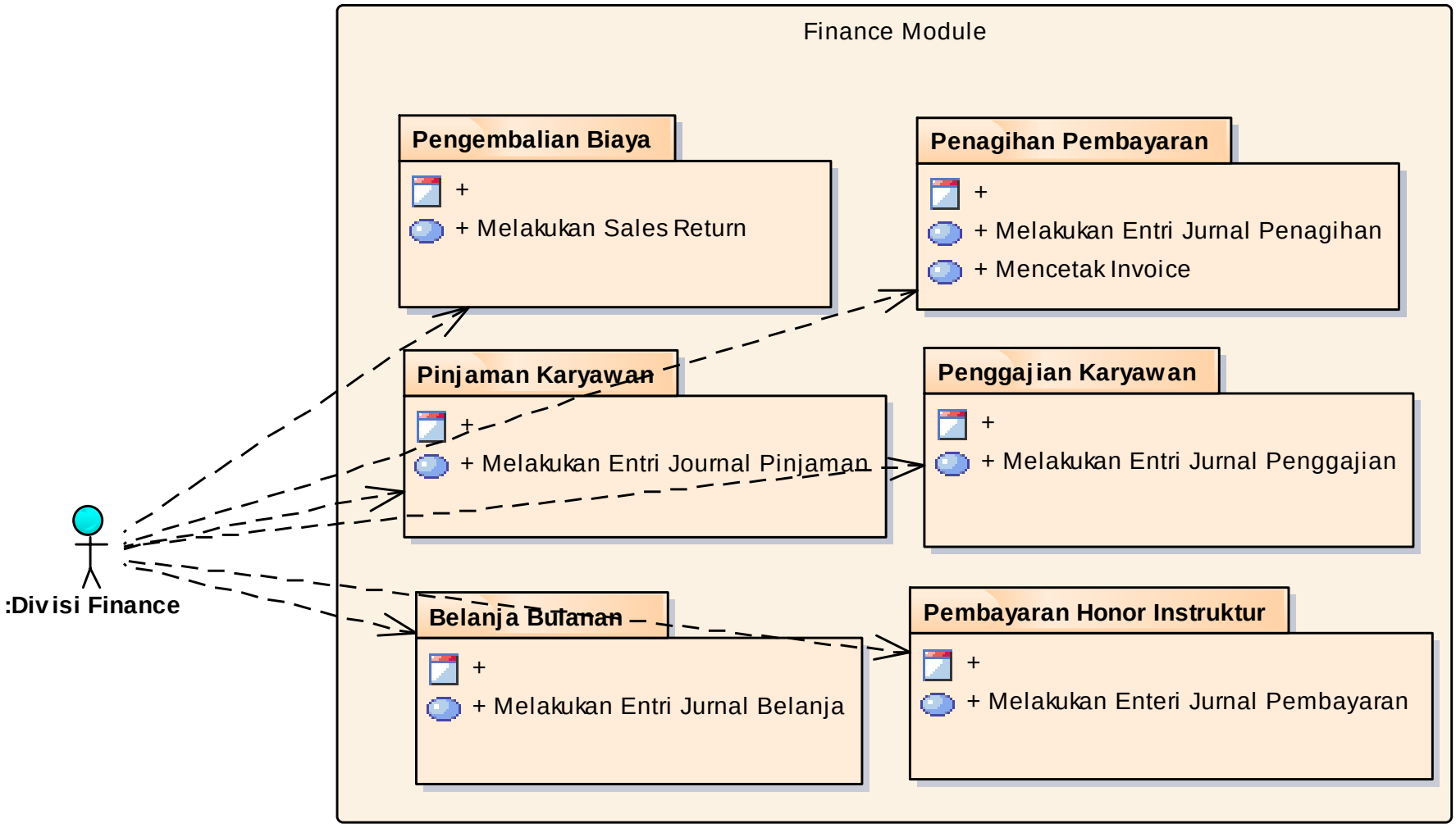
Application Use Case Diagram:
Customer Relationship Module



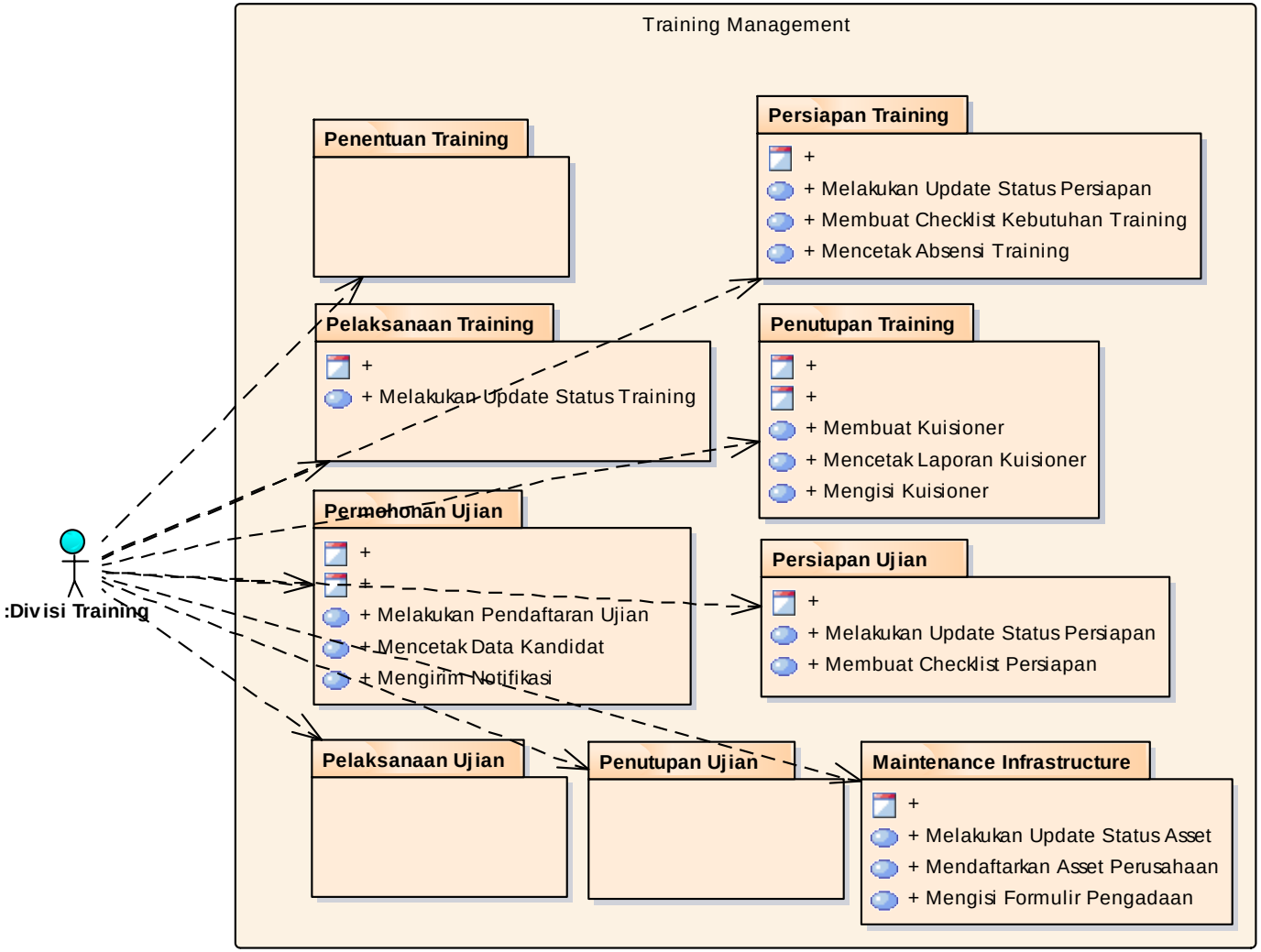
Application Use Case Diagram:
Customer Relationship Module - Pemasaran Training



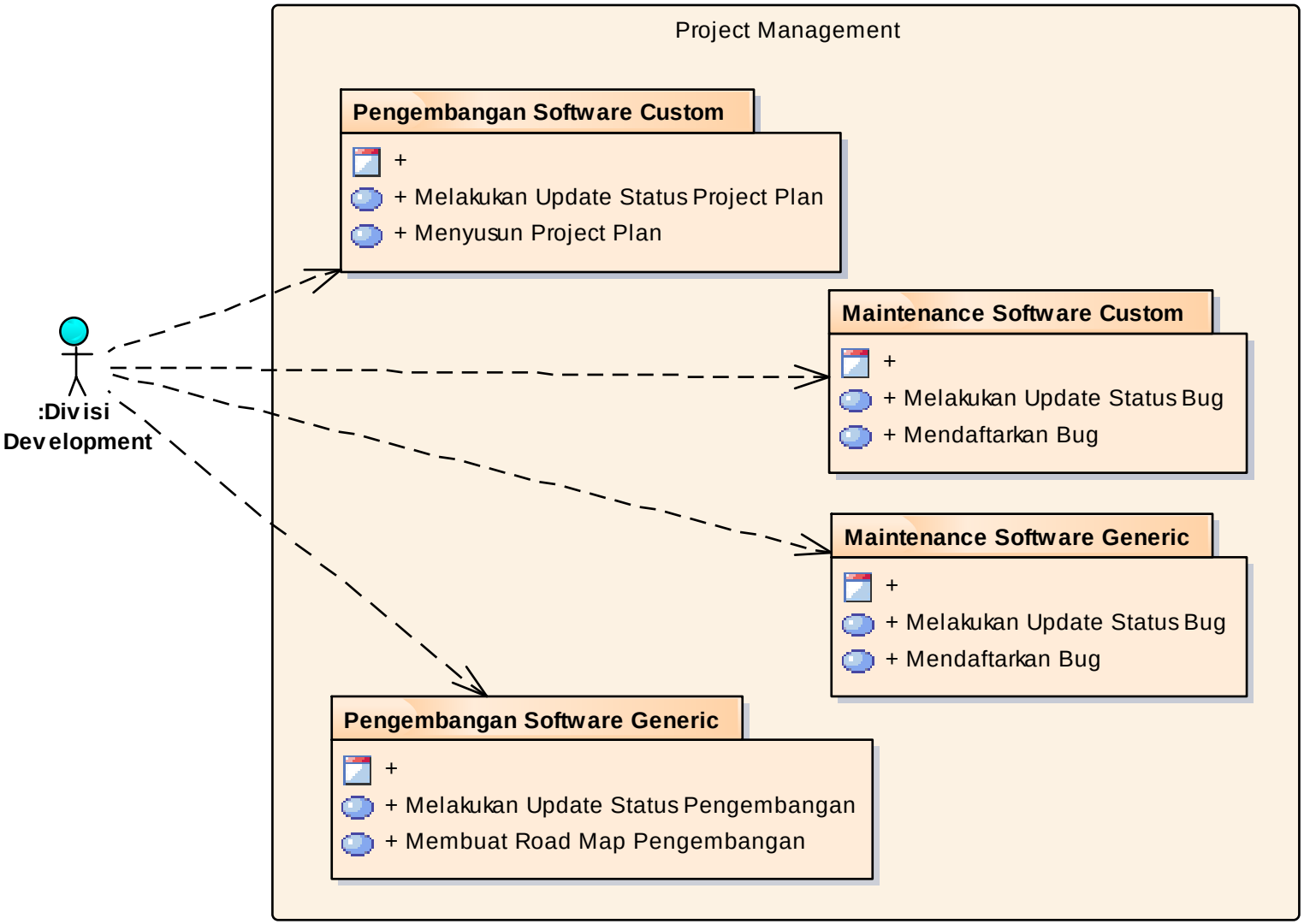
Application Use Case Diagram:
Finance Module



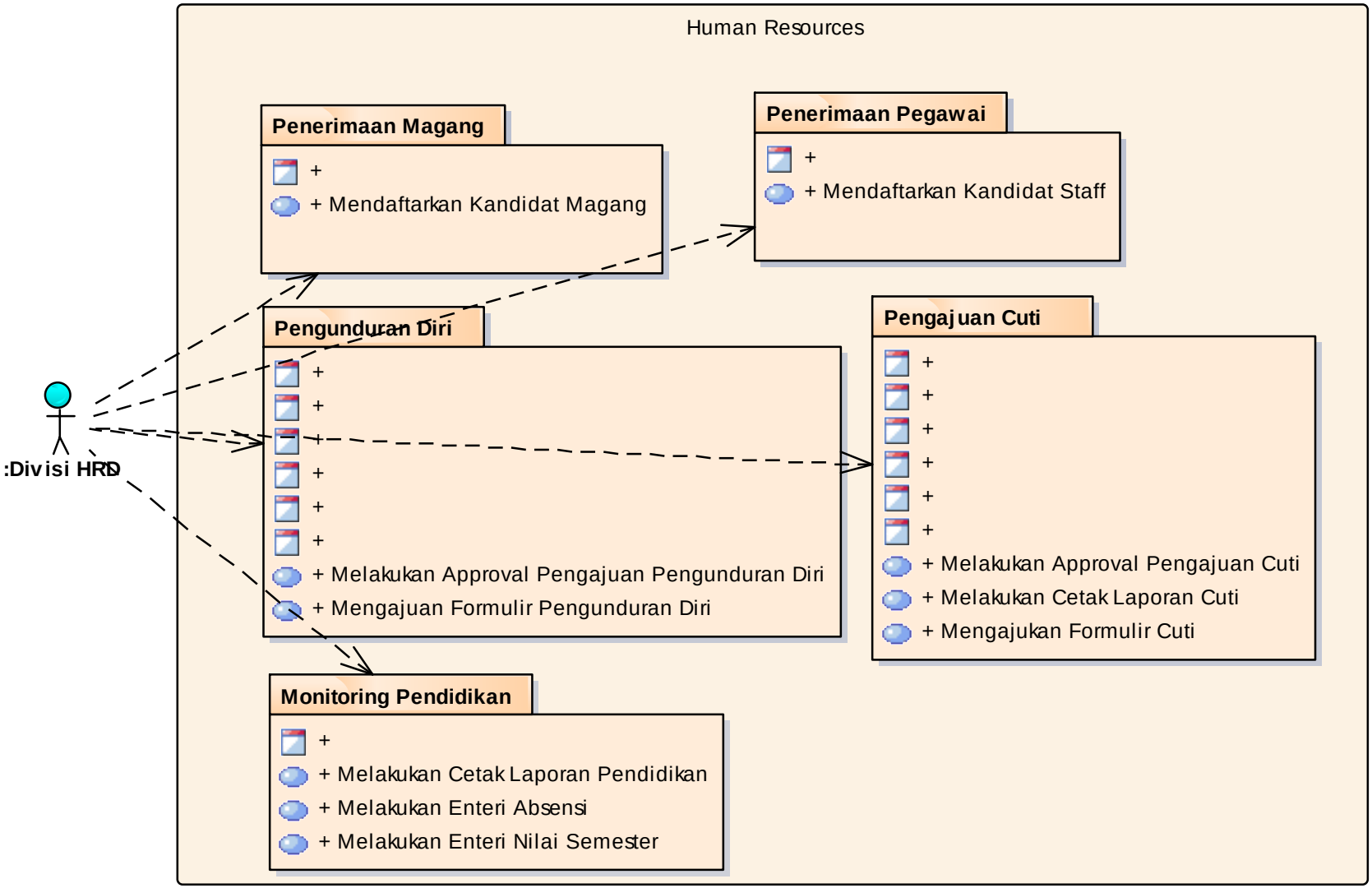
Application Use Case Diagram:
Training Management Module



Application Use Case Diagram:
Project Management Module



Application Use Case Diagram:
Human Resources Module



EA - Data Architecture

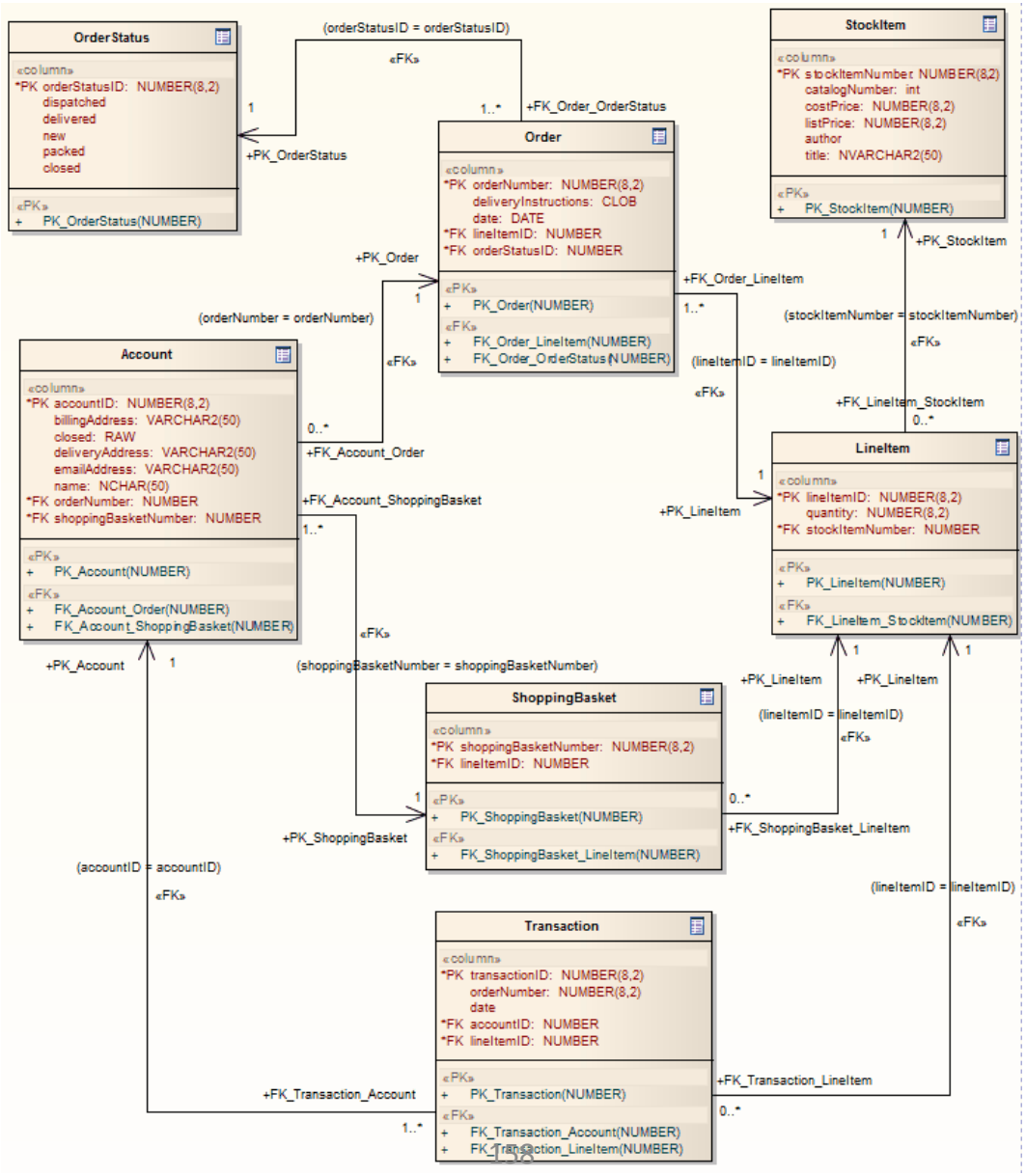
Application/Data Matrix

Module DB - Entity	Finance Module	Human Resource Module	Project Management Module	Training Management Module	Customer Relationship Module
HRM - Karyawan	R	CRUD	R		
PM - Project			CRUD		
TM - Peserta	R			CRUD	R
TM – Instruktur	R	R		CRUD	R
.....	.....	.....	.....	.....	.....

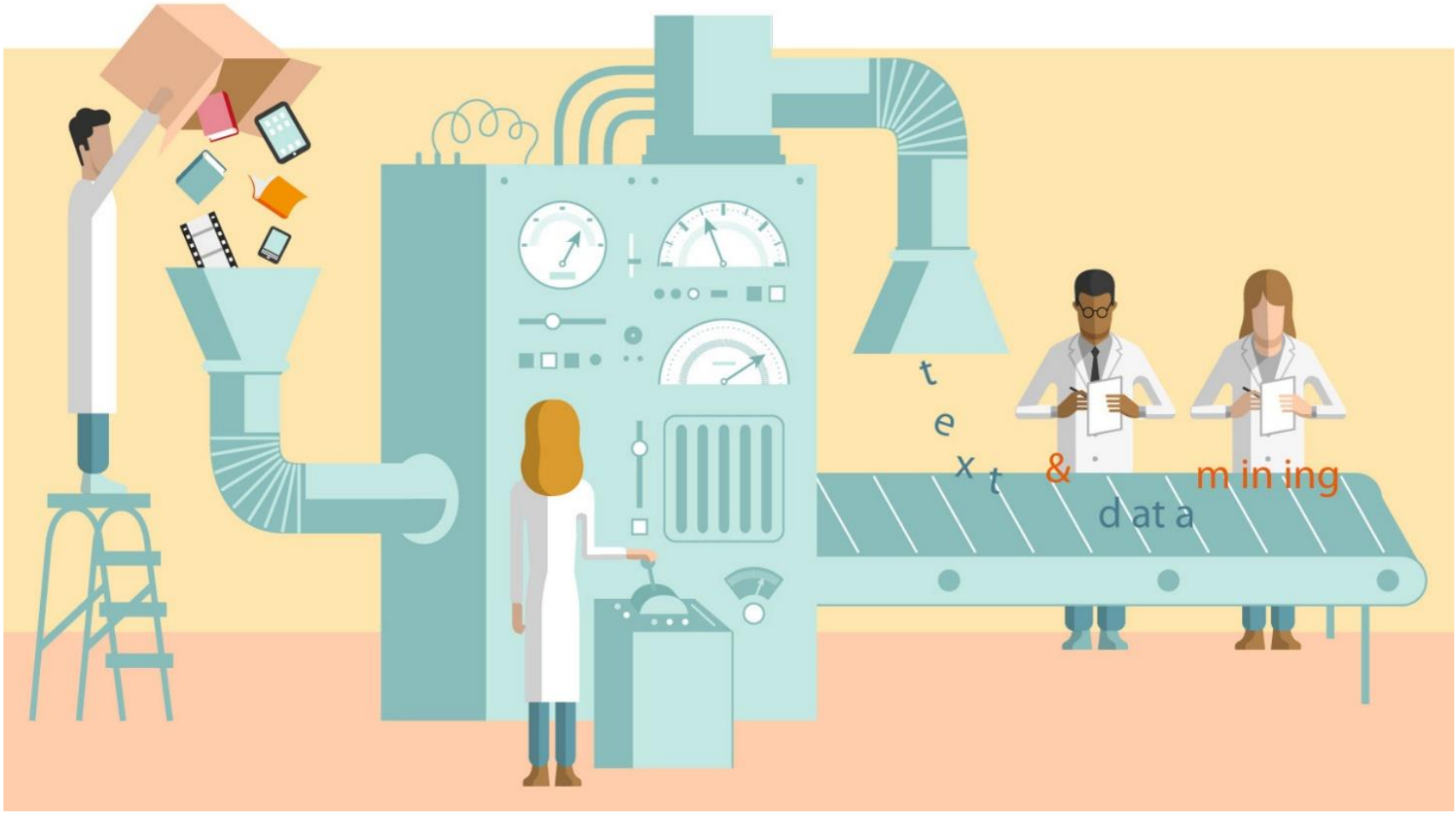
Data Entity/Business Function Matrix

Module DB - Entity	Business Process	Organization
HR - Karyawan	Pengajuan Cuti	Human Resource Division
PM - Project	Maintenance Software Custom	Development Division
TM - Peserta	Pelaksanaan Training	Training Division
TM – Instruktur	Persiapan Training	Training DIvision
…….	…….	…….

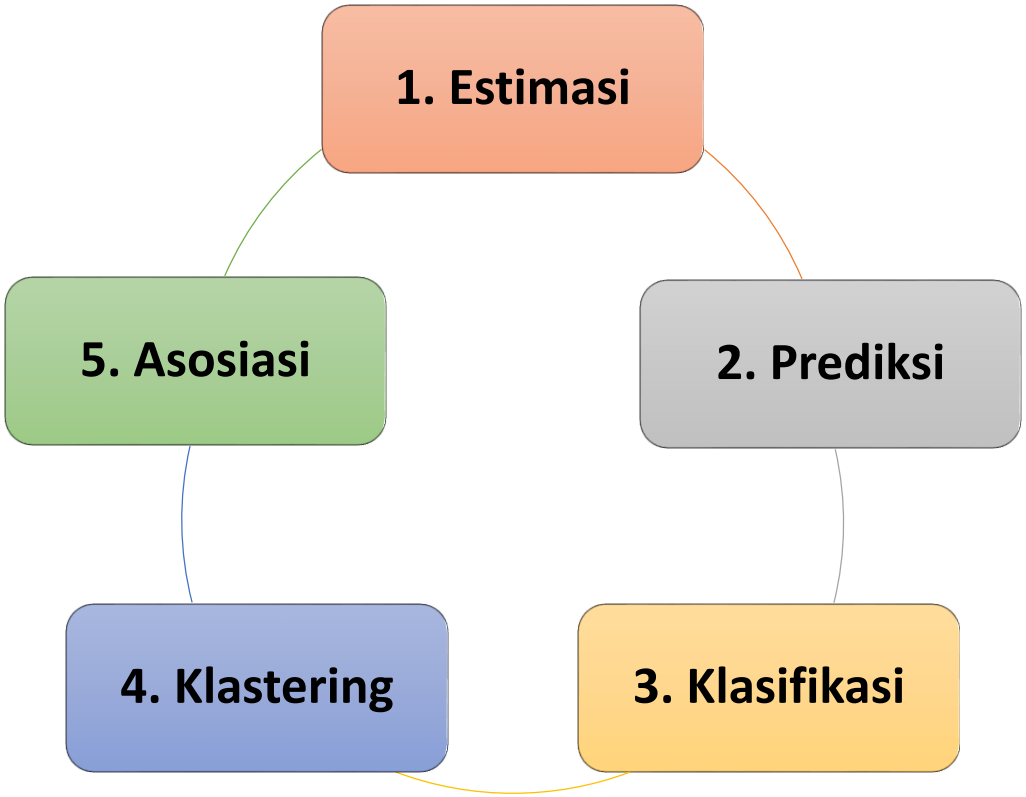
Logical Data Diagram



Arsitektur Data Mining



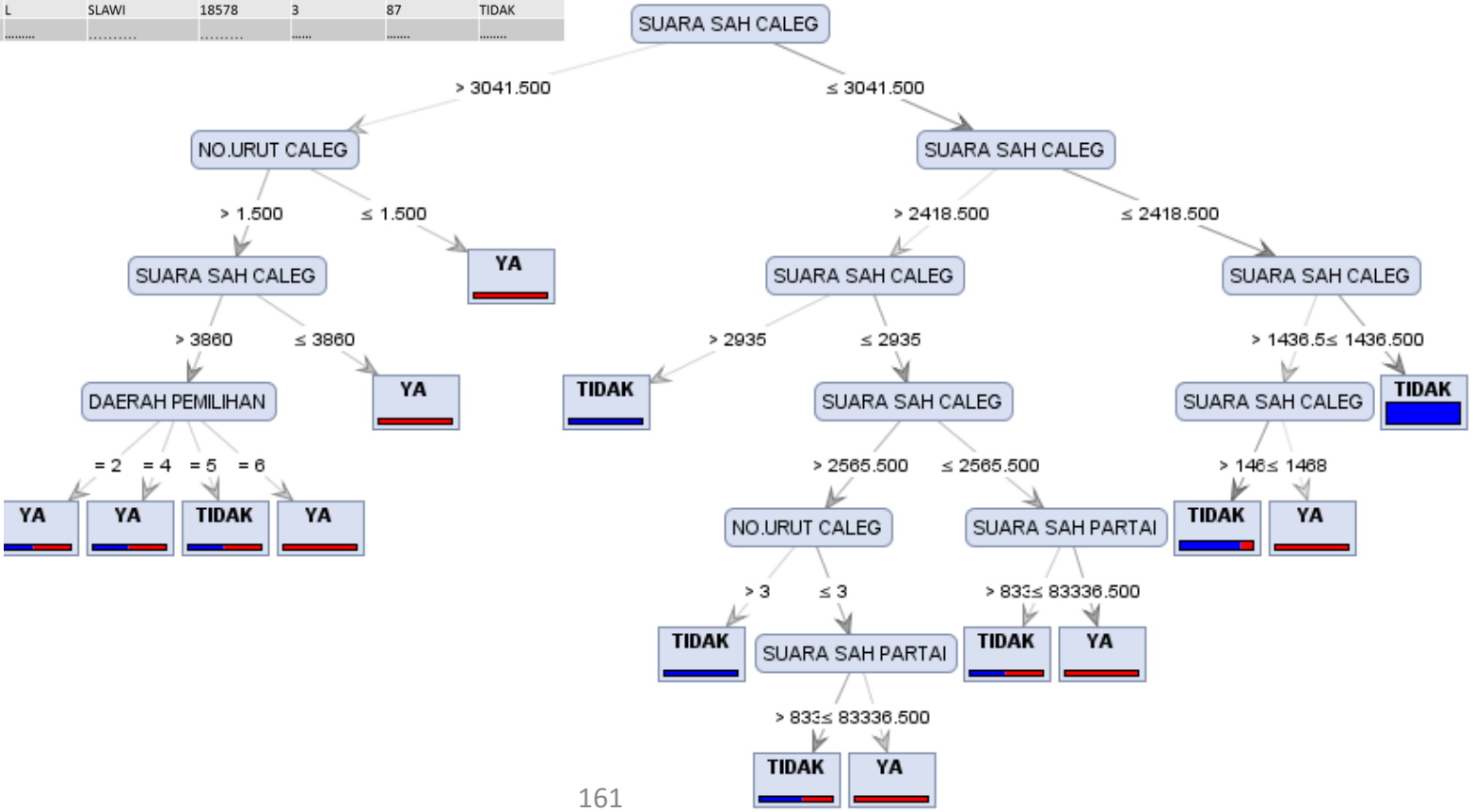
Data - Informasi - Pengetahuan



- Prediksi dan klastering calon tersangka koruptor
- Asosiasi atribut tersangka koruptor
- Prediksi pencucian uang
- Estimasi jenis dan jumlah tahun hukuman

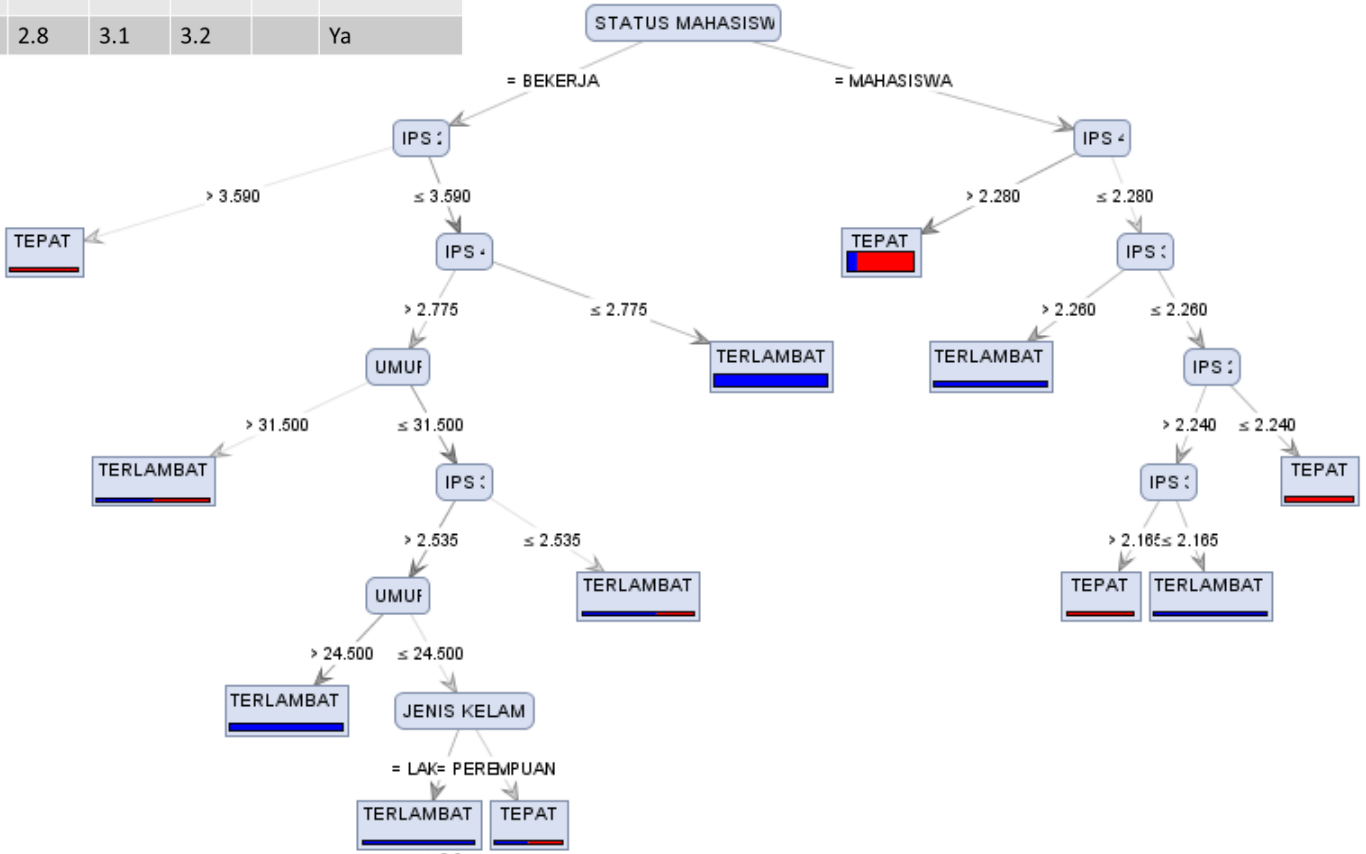
Prediksi Calon Legislatif DKI Jakarta

NAMA PARTAI POLITIK	NAMA CALON LEGESLATIF	JENIS KELAMIN	KECAMATAN	SUARA SAH PARTAI	DAERAH PEMILIHAN	SUARA SAH CALEG	TERPILIH ATAU TIDAK
HANURA	TOTO SUKISNO,BSc	L	LEBAKSIU	18578	1	594	TIDAK
HANURA	EDI PURYANTO,SH	L	SLAWI	18578	1	943	TIDAK
PKB	ELI RETNOWATI,SH	P	SLAWI	18578	1	1730	TIDAK
PKB	SAHYUDIN	L	DUKUHWARU	18578	1	2508	YA
GOLKAR	H.FAJAR SIGIT KUSUMAJAYA,SH	L	SLAWI	18578	2	923	TIDAK
GOLKAR	SUMIRAH	P	TARUB	18578	2	308	TIDAK
GOLKAR	DARYOTO	L	TARUB	18578	2	54	TIDAK
PKS	KHAPIP APRONI,S.Pdi	L	BOJONG	18578	3	1682	TIDAK
PKS	ENDANG SUCI RAHAYU	P	JATINEGARA	18578	3	918	TIDAK
PDI-P	KH.CHAFIDZ ISA MUFTI ,LC	L	SLAWI	18578	3	87	TIDAK
.....	.....	.....	.....	.....	.....	.....	.....



Prediksi Kelulusan Mahasiswa

NIM	Gender	Nilai UN	Asal Sekolah	IPS1	IPS2	IPS3	IPS 4	...	Lulus Tepat Waktu
10001	L	28	SMAN 2	3.3	3.6	2.89	2.9		Ya
10002	P	27	SMA DK	4.0	3.2	3.8	3.7		Tidak
10003	P	24	SMAN 1	2.7	3.4	4.0	3.5		Tidak
10004	L	26.4	SMAN 3	3.2	2.7	3.6	3.4		Ya
...									
...									
11000	L	23.4	SMAN 5	3.3	2.8	3.1	3.2		Ya



EA - Technology Architecture

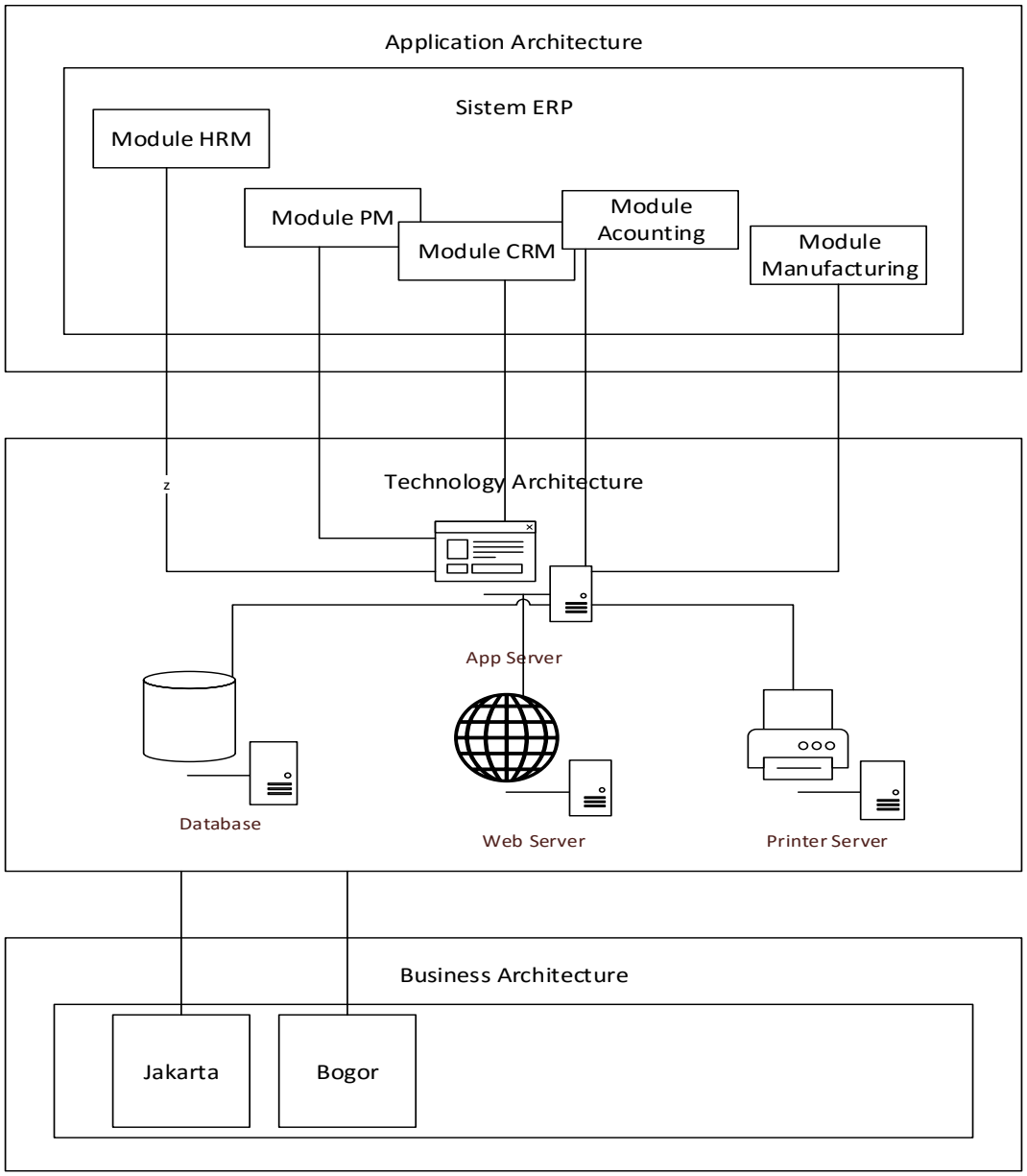
Technology Standard Catalog

No	Technology
1	RUP shall be used as the formal methodology for Brainmatics
2	UML shall be used as the standard notation
3	Sparx EA shall be used to facilitate the software engineering processes
4	Java shall be the programming language
5	Use JBoss 5.0 as the Application Server
6	Browser: IE 4.0 +, Mozilla Firefox 1.0 HTML: 4.0 + Web 2.0
7	Script Support: JavaScript 1.1
8	Use IBM System x3850 M2 as the host server
9	Symantec Network Security and Symantec AntiVirus for Security
10	Oracle 10g for Database
11	Hibernate Framework
12	XML for Web Services
13	Lightweight Directory Access Protocol (LDAP)
14	SSL,PKI, Single Sign On

Application/Technology Matrix

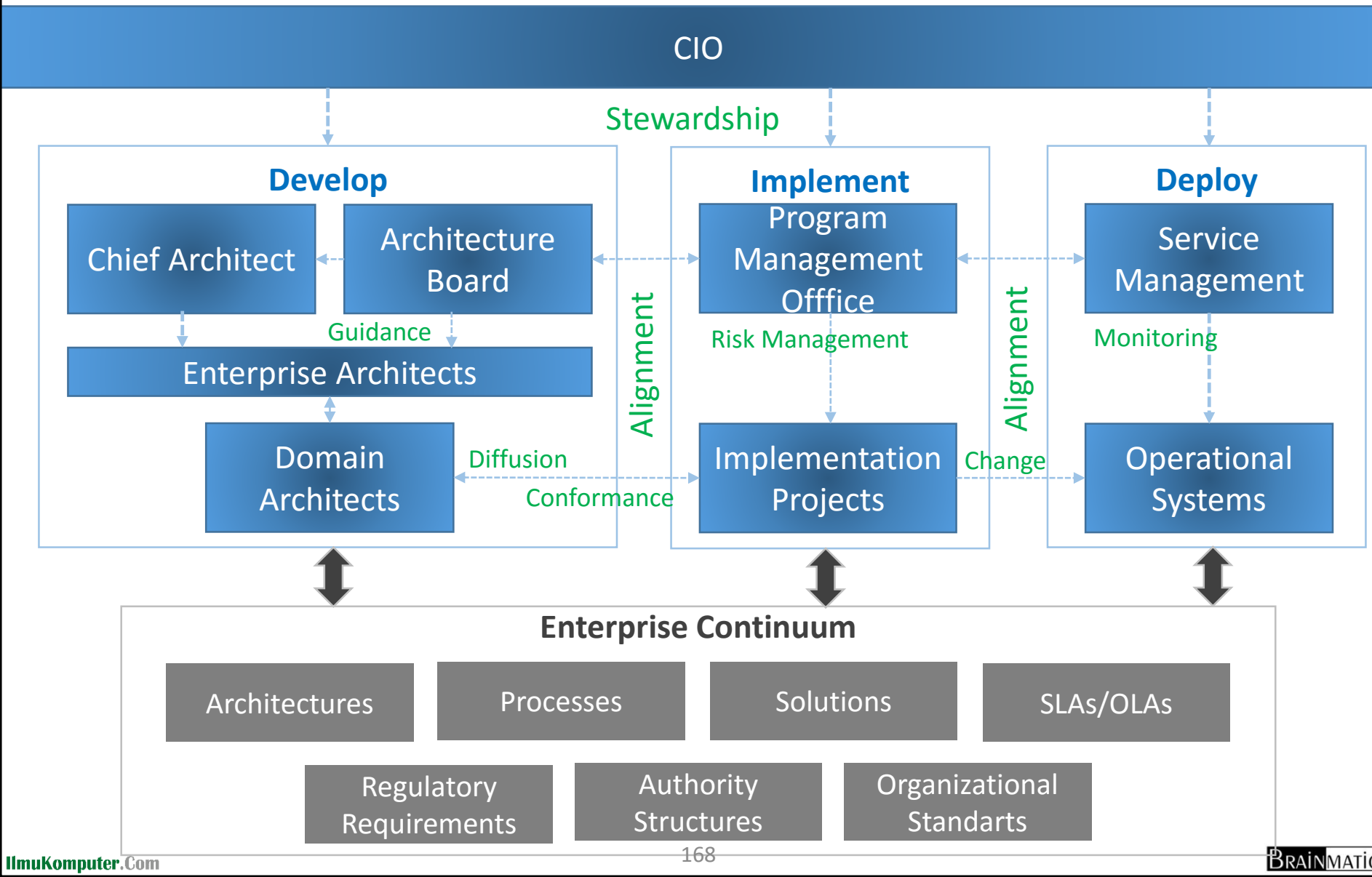
Module / Technology	Finance Module	Human Resource Module	Project Management Module	Training Module	Customer Relationship Module
JBOSS App Server	X				
Oracle DBMS	X	X	X	X	X
Web Server		X			X
Javascript		X			X
OpenERP	X	X	X	X	X
……	……	……	……	……	……

Environment and Location Diagram

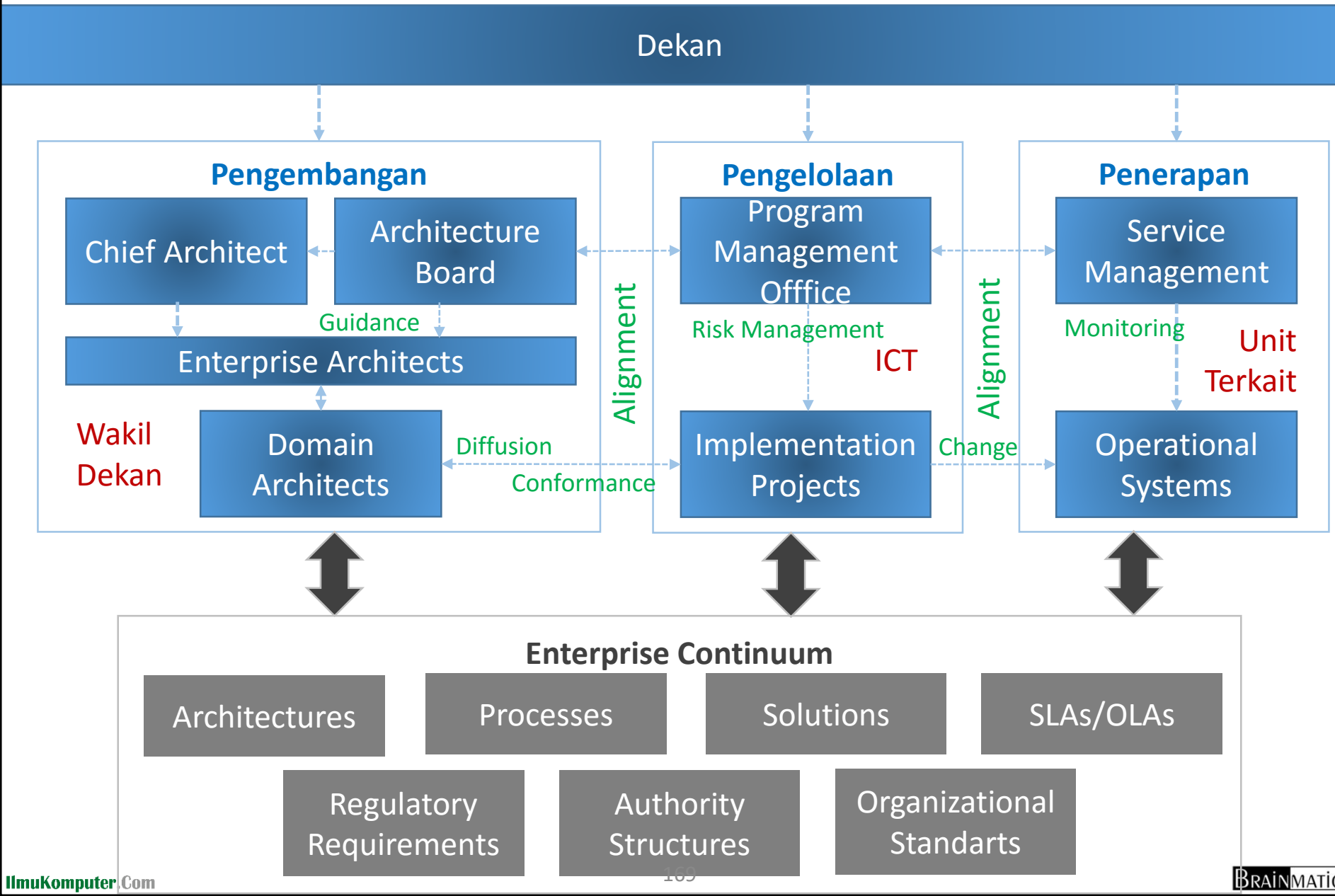


EA - Architecture Governance

Architecture Governance



Architecture Governance



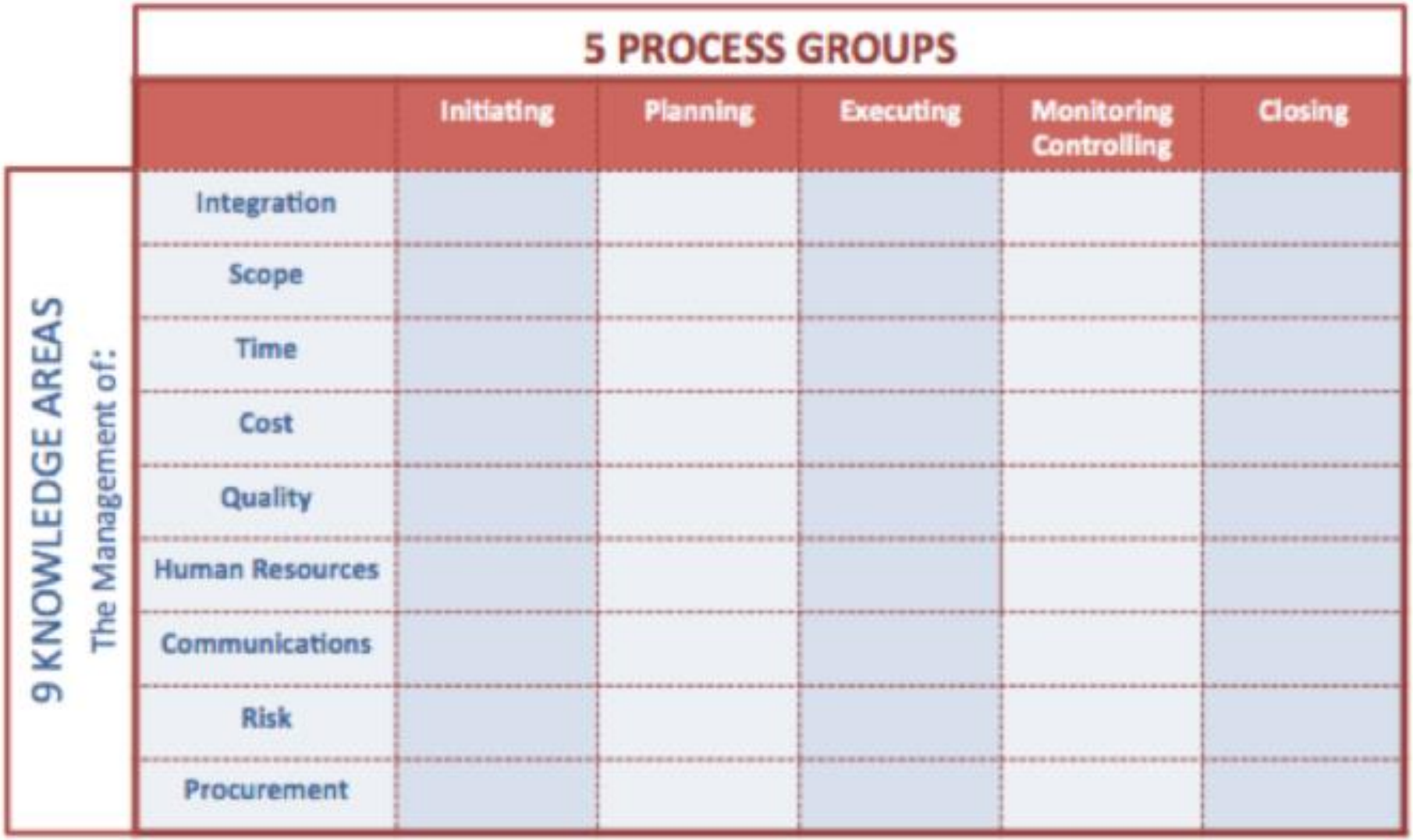
3.2 PMBOK (Project Management Framework)

PMBOK

- PMBOK (Project Management Body of Knowledge) adalah framework dan kumpulan pengetahuan khusus beserta *best practice* mengenai pengelolaan project
- Dikeluarkan oleh Project Management Institute (PMI), dan diupdate setiap beberapa tahun sekali PMI
  - Saat ini edisi yang terbaru adalah edisi kelima yang dirilis pada tahun 2013

PMBOK Process

PMBOK Process Group vs Knowledge Area



9 KNOWLEDGE AREAS (The Management of:)	5 PROCESS GROUPS				
	Initiating	Planning	Executing	Monitoring Controlling	Closing
Integration					
Scope					
Time					
Cost					
Quality					
Human Resources					
Communications					
Risk					
Procurement					

PROCESS GROUPS / KNOWDLEGE AREA	INITIATING (I)	PLANNING (P)	EXECUTING (E)	MONITORING & CONTROLLING (MC)	CLOSING (C)
4. INTEGRATION (I)	1. Dev. Project Charter	1. Dev. Project Management Plan	1. Direct & Manage Project Execution	1. Monitor & Control Project Work 2. Perform I.C.C	1. Close Project or Phase
5. SCOPE (SAW)		1. Collect Requirement 2. Define Scope 3. Create WBS		1. Verify Scope 2. Control Scope	
6.TIME (THE)		1. Define Activities 2. Sequence Activities 3. Est. Act. Resource 4. Est. Act. Duration 5. Develop Schedule		1. Control Schedule	
7. COST (CAR)		1. Est. Cost 2. Determine Budget		1. Control Cost	
8. QUALITY (QUICKLY)		1. Plan Quality	1. Perform Q.A	1. Perform Q.C	
9.HUMAN RESOURCE (HITS)		1. Dev. H.R Plan	1. Acquire Project Team 2. Dev. Project Team 3. Manage Project Team		
10.COMMUNICATION (CHRIST'S)	1. Identify Stakeholders	1. Plan Communication	1. Distribute Info. 2. Manage Stakeholder Expectation	1. Report Performance	
11. RISK (REAR)		1. Plan Risk Management 2. Identify Risk 3. Perform Qualitative Risk 4. Perform Quantitative Risk 5. Plan Risk Responses		1. Monitor & Control Risk	
12. PROCUREMENT (PLATE)		1. Plan Procurements	1. Conduct Procurements	1. Administer Procurements	1. Close Procurement

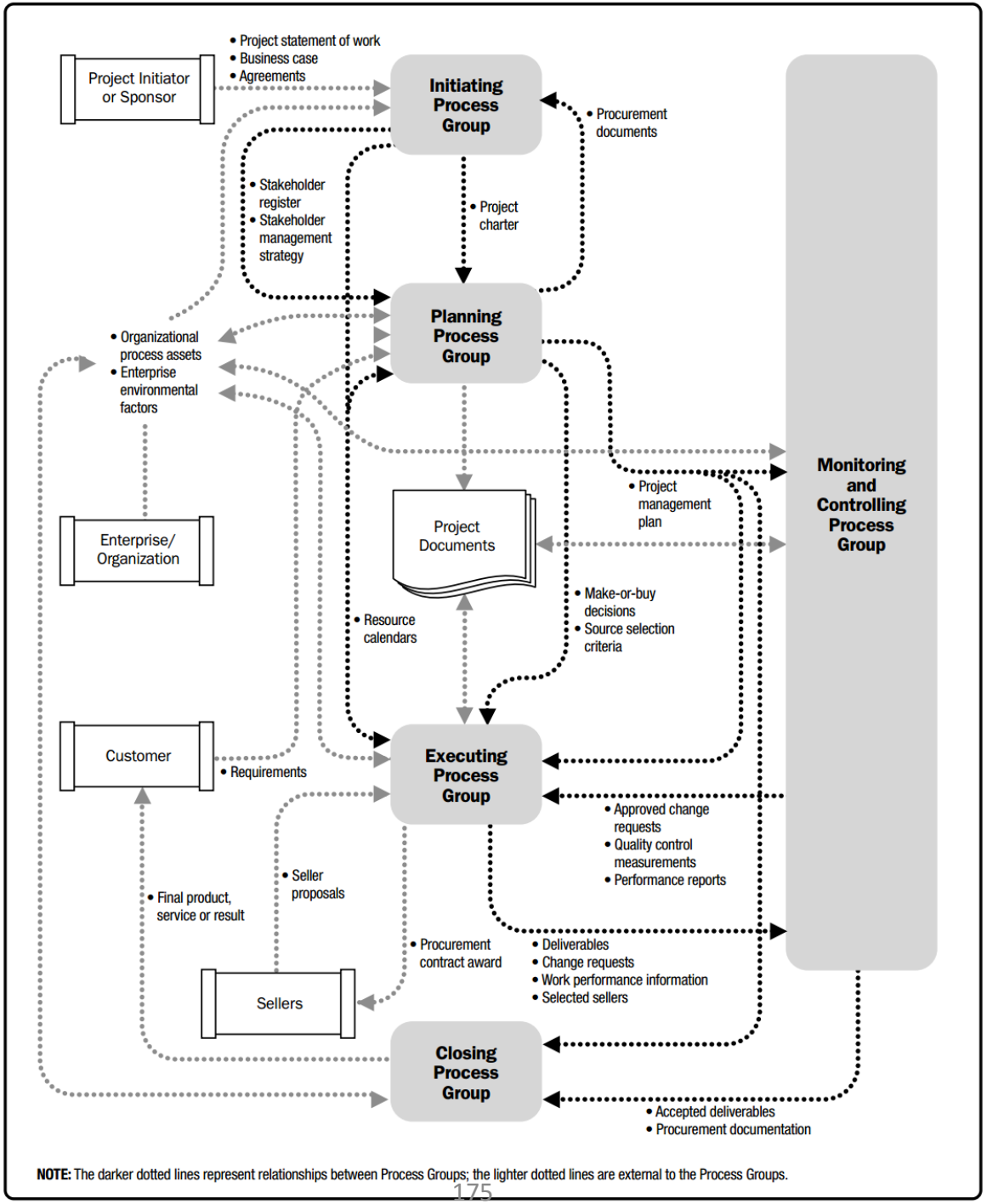
2 processes in INITIATING

ALL KA's in PLANNING

No SCOPE, TIME, COST, RISK in EXECUTING

No HR in MONITORING & CONTROLLING

2 processes in CLOSING



NOTE: The darker dotted lines represent relationships between Process Groups; the lighter dotted lines are external to the Process Groups.

Project Charter

PROJECT CHARTER

Project Information			
Project Name	Regional Finance MIS System Architect Development		
Project Start	15 April 2016	**Project Finish**	19 February 2017
Project Owner	Direktorat Jenderal Perimbangan Keuangan (DJPK)		
Project Sponsor	Kolaborasi Masyarakat dan Pelayanan untuk Kesejahteraan (KOMPAK)		

Project Stakeholder

Direktorat Jenderal Perimbangan Keuangan (DJPK)			Kolaborasi Masyarkaat dan Pelayanan untuk Kesejahteraan (KOMPAK)		
Name	***Role***	***Contact***	***Name***	***Role***	***Contact***
Fadliya	Kepala Sub Direktorat Informasi dan Dukungan Teknis	fadliya@gmail.com	Romi Satria Wahono	Consultant	081586220090 romi@brainmatics.com
Arman Gunawan	Kepala Seksi Pengembangan Aplikasi dan Program	085694573775 arman.gunawan@gmail.com	Purri Andriaty	Responsive Government Coordinator	08128188153 purri.andriaty@kompak.or.id

Description

Direktorat Jenderal Perimbangan Keuangan (DJPK) adalah salah satu organisasi di bawah Kementerian Keuangan yang bertugas menyiapkan perumusan kebijakan di bidang perimbangan keuangan antara pemerintah pusat dan daerah. Saat ini tuntutan masyarakat terhadap pelayanan pengelolaan keuangan ini semakin tinggi. Masyarakat mengharapkan adanya peningkatan kinerja, transparansi informasi dan akuntabilitas pengelolaan informasi. Untuk menjawab kebutuhan tersebut dibutuhkanusahapeningkatan dari berbagai aspek, diantaranya adalah aspek tata kelola organisasi dan proses bisnis, informasi dan sumber daya. Usaha peningkatan ini bertujuan untuk memberikan pelayanan informasi yang efektif dan efisien kepada masyarakat.

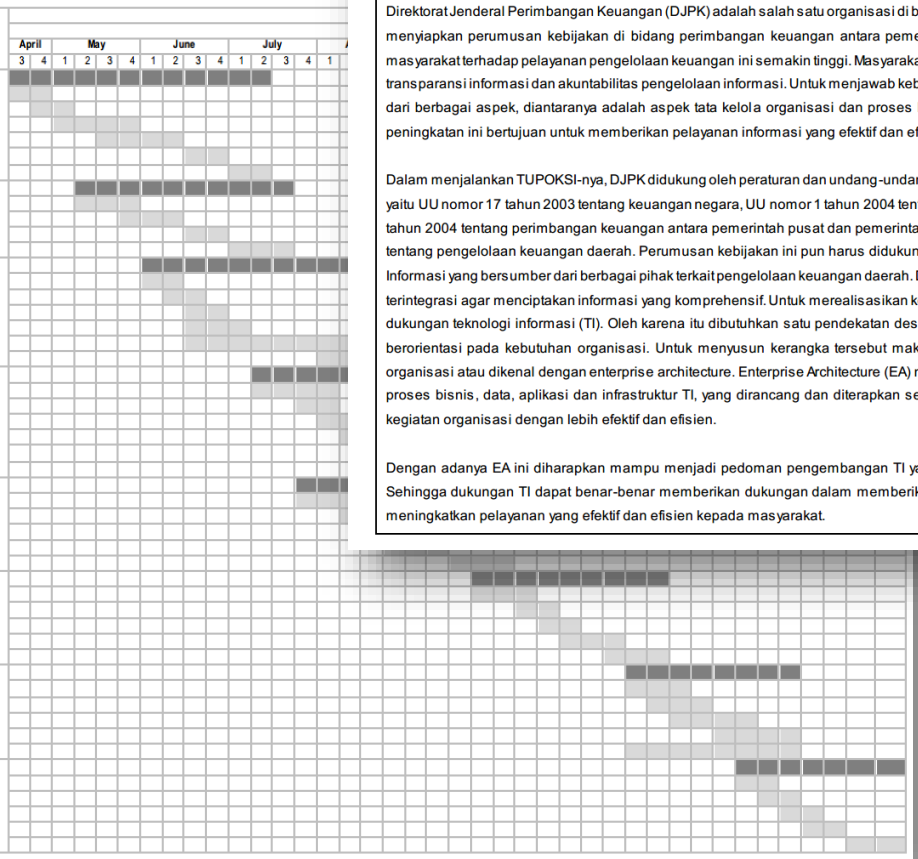
Dalam menjalankan TUPOKSI-nya, DJPK didukung oleh peraturan dan undang-undang mengenai pengelolaan keuangan daerah, yaitu UU nomor 17 tahun 2003 tentang keuangan negara, UU nomor 1 tahun 2004 tentang perbendaharaan negara, UU Nomor 33 tahun 2004 tentang perimbangan keuangan antara pemerintah pusat dan pemerintahan daerah, serta PP nomor 58 tahun 2005 tentang pengelolaan keuangan daerah. Perumusan kebijakan ini pun harus didukung oleh data dan informasi yang dibutuhkan. Informasi yang bersumber dari berbagai pihak terkait pengelolaan keuangan daerah. Dibutuhkan kolaborasi informasi yang saling terintegrasi agar menciptakan informasi yang komprehensif. Untuk merealisasikan kebutuhan tersebut dirasa sulit tanpa adanya dukungan teknologi informasi (TI). Oleh karena itu dibutuhkan satu pendekatan desain atau kerangka teknologi informasi yang berorientasi pada kebutuhan organisasi. Untuk menyusun kerangka tersebut maka dibutuhkan pengembangan arsitektur TI organisasi atau dikenal dengan enterprise architecture. Enterprise Architecture (EA) merupakan cetak biru organisasi yang berisi proses bisnis, data, aplikasi dan infrastruktur TI, yang dirancang dan diterapkan secara terpadu untuk membantu berjalannya kegiatan organisasi dengan lebih efektif dan efisien.

Dengan adanya EA ini diharapkan mampu menjadi pedoman pengembangan TI yang sejalan dengan kebutuhan organisasi. Sehingga dukungan TI dapat benar-benar memberikan dukungan dalam memberikan pelayanan dan kebijakan serta mampu meningkatkan pelayanan yang efektif dan efisien kepada masyarakat.

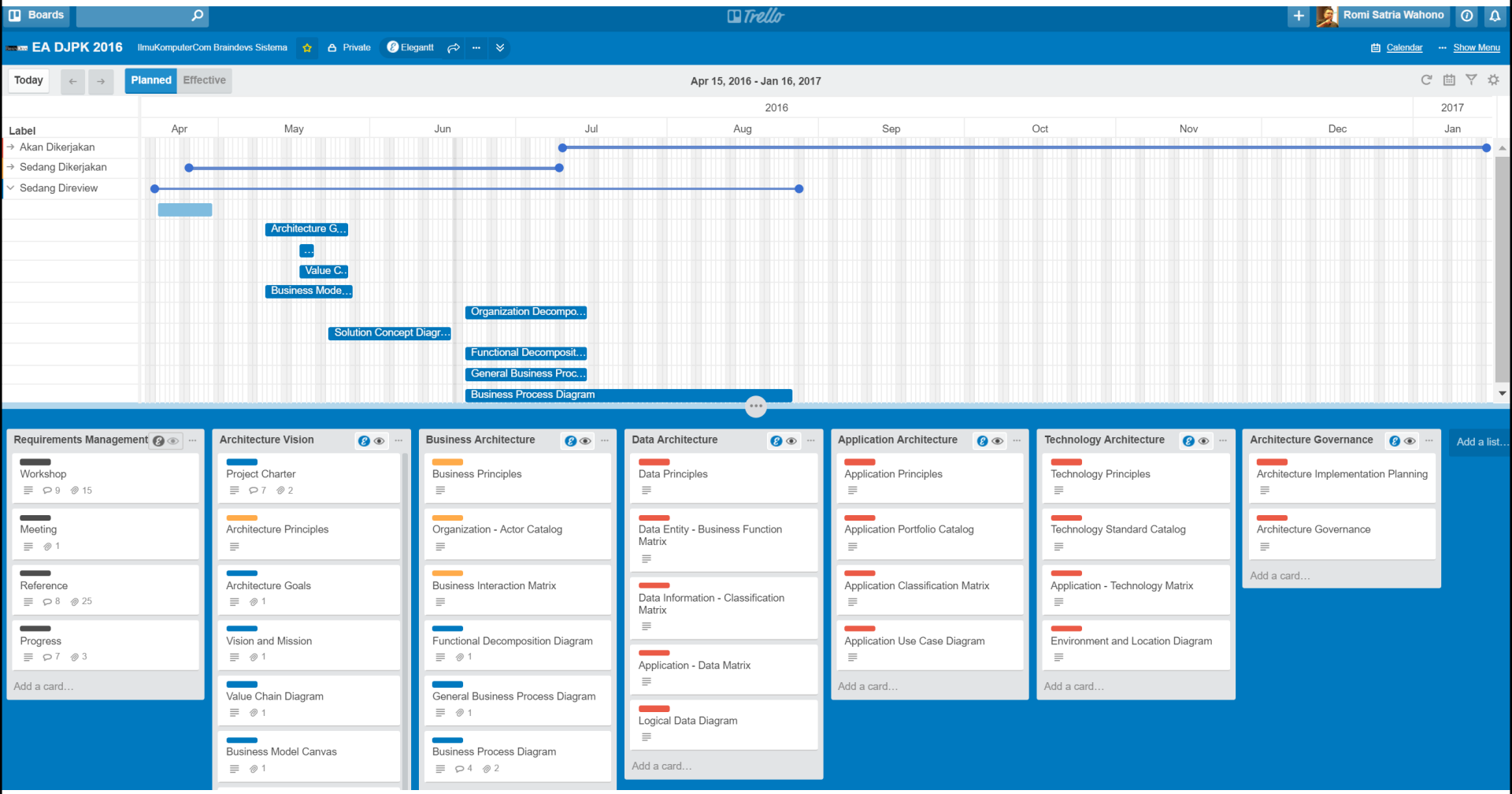
PROJECT CHARTER

Jadwal Kegiatan
Pengembangan Enterprise Architecture Direktorat Jenderal Perimba

Description	Deliverables	PIC
Preliminary		
Identifikasi ruang lingkup organisasi secara menyeluruh	• Project Charter • Architecture Principle • Architecture Goal	• Semua Unit DJPK • Konsultan KOMPAK
Menentukan tim dan pengorganisasian *enterprise architecture*		
Identifikasi dan penentuan prinsip dan tujuan *enterprise architecture*		
Menyusun *project charter* untuk pengembangan *enterprise architecture*		
Workshop TOGAF		
Workshop BPMN		
Architecture Vision	• Business Model Canvas • Value Chain Diagram • Solution Concept Diagram • Organization Decomposition Diagram	• Semua Unit DJPK • Konsultan KOMPAK
Identifikasi kebutuhan bisnis organisasi dan pihak yang terkait		
Identifikasi visi tentang arsitektur		
Konfirmasi dan evaluasi target dan kemampuan bisnis organisasi		
Identifikasi *value proposition* dan *key performance indicator* organisasi		
Business Architecture	• Business Principle • Organization - Actor Catalog • Business Interaction Matrix • Functional Decomposition Diagram • General Business Process Diagram • Business Process Diagrams	• Bagian Organisasi dan Kepatuhan Internal • Konsultan KOMPAK
Identifikasi *business architecture* yang ada saat ini		
Menentukan prinsip dan target *business architecture*		
Melakukan analisis kesenjangan		
Identifikasi aktor dan interaksi antar unit kerja dalam organisasi		
Identifikasi seluruh bisnis proses yang ada di organisasi		
Melakukan review dan finalisasi *business architecture* bersama pihak terkait		
Data Architecture	• Data Principle • Data Entity - Business Function Matrix • Application - Data Matrix • Logical Data Diagram	• Subdirektorat Teknologi Informasi • Konsultan KOMPAK
Identifikasi *data architecture* yang ada saat ini		
Menentukan prinsip dan target *data architecture*		
Melakukan analisis kesenjangan		
Identifikasi korelasi antara data, unit kerja dan aplikasi yang digunakan organisasi		
Sosialisasi dan workshop Data Mining		
Melakukan review dan finalisasi *data architecture* bersama pihak terkait		
Application Architecture	• Application Principle • Application Portfolio Catalog • Application Classification Matrix • Application Use Case diagram	• Subdirektorat Teknologi Informasi • Konsultan KOMPAK
Identifikasi *application architecture* yang ada saat ini		
Menentukan prinsip dan target *application architecture*		
Melakukan analisis kesenjangan		
Identifikasi korelasi antara proses bisnis, unit kerja dan aplikasi organisasi		
Melakukan review dan finalisasi *application architecture* bersama pihak terkait		
Technology Architecture	• Technology Principle • Technology Standard Catalog • Application - Technology Matrix • Environment and Location Diagram	• Subdirektorat Teknologi Informasi • Konsultan KOMPAK
Identifikasi *technology architecture* yang ada saat ini		
Menentukan prinsip dan target *technology architecture*		
Melakukan analisis kesenjangan		
Identifikasi korelasi antara aplikasi dan teknologi yang digunakan di organisasi		
Melakukan review dan finalisasi *technology architecture* bersama pihak terkait		
Architecture Governance	• Architecture Implementation Planning • Architecture Governance • Draft Produk Hukum – *Enterprise Architecture*	• Sekretariat Direktorat Jenderal • Subdirektorat Teknologi Informasi • Konsultan KOMPAK
Menentukan kendala bisnis dalam proses implementasi arsitektur		
Melakukan analisis dan penyesuaian terhadap kebutuhan interoprobilitas		
Menyusun roadmap arsitektur, implementasi dan perencanaan migrasi		
Estimasi kebutuhan sumber daya dan ketersediaan sarana prasarana		
Menyusun produk hukum - *enterprise architecture*		
Project Finalization	• Enterprise Architecture DJPK • Produk Hukum – Enterprise Architecture DJPK	• Semua Unit DJPK • Konsultan KOMPAK
Merangkum seluruh artifact *enterprise architecture*		
Mengembangkan visualisasi dari *enterprise architecture*		
Melakukan review dan diskusi akhir bersama pihak terkait		
Menyusun laporan akhir tentang *enterprise architecture*		
Sosialisasi *enterprise architecture* DJPK		



Project Management (Trello.Com Board)



Akan Dikerjakan

Sedang Dikerjakan

Sedang Direview

Selesai Dikerjakan

Project Management (Trello.Com Board)

EA KPK 2015 | Brainmatics Cipta Informatika | Private

Preliminary

- Project Charter and Schedule
- KPK Enterprise Architecture
- Enterprise Architecture Artifacts
- Architecture Principles — Sep 11, 2015
- Architecture Goals — Sep 11, 2015

Add a card…

Architecture Vision

- Vision and Mission
- Value Chain Diagram — Sep 18, 2015
- Business Model Canvas
- Organization Decomposition Diagram — Sep 18, 2015
- Stakeholder Map Matrix — Sep 18, 2015
- Solution Concept Diagram — Sep 18, 2015

Add a card…

Business Architecture

- Business Principles — Oct 30, 2015
- Organization/ Actor Catalog — Oct 30, 2015
- Business Interaction Matrix — Oct 30, 2015
- Functional Decomposition Diagram — Oct 30, 2015
- General Business Process Diagram — Oct 30, 2015
- Business Process Diagram — Oct 30, 2015

Data Architecture

- Data Principles — Sep 30, 2015
- Data Entity/ Business Function Matrix — Sep 30, 2015
- Data Information/Classification Matrix
- Application/ Data Matrix — Sep 30, 2015
- Logical Data Diagram — Sep 30, 2015
- Data Architecture Documents — Sep 30, 2015

Add a card…

Application Architecture

- Application Principles — Oct 23, 2015
- Application Portfolio Catalog — Oct 23, 2015
- Application Use Case Diagram — Oct 23, 2015
- Application Architecture Documents — Oct 23, 2015

Add a card…

Technology Architecture

- Technology Principles — Oct 30, 2015
- Technology Standard Catalog — Oct 30, 2015
- Application/ Technology Matrix — Oct 30, 2015
- Environment and Location Diagram — Oct 30, 2015
- Security Policy and Architecture — Oct 30, 2015
- Technology Architecture Documents — Oct 30, 2015

Add a card…

Akan Dikerjakan

Sedang Dikerjakan

Sedang Direview

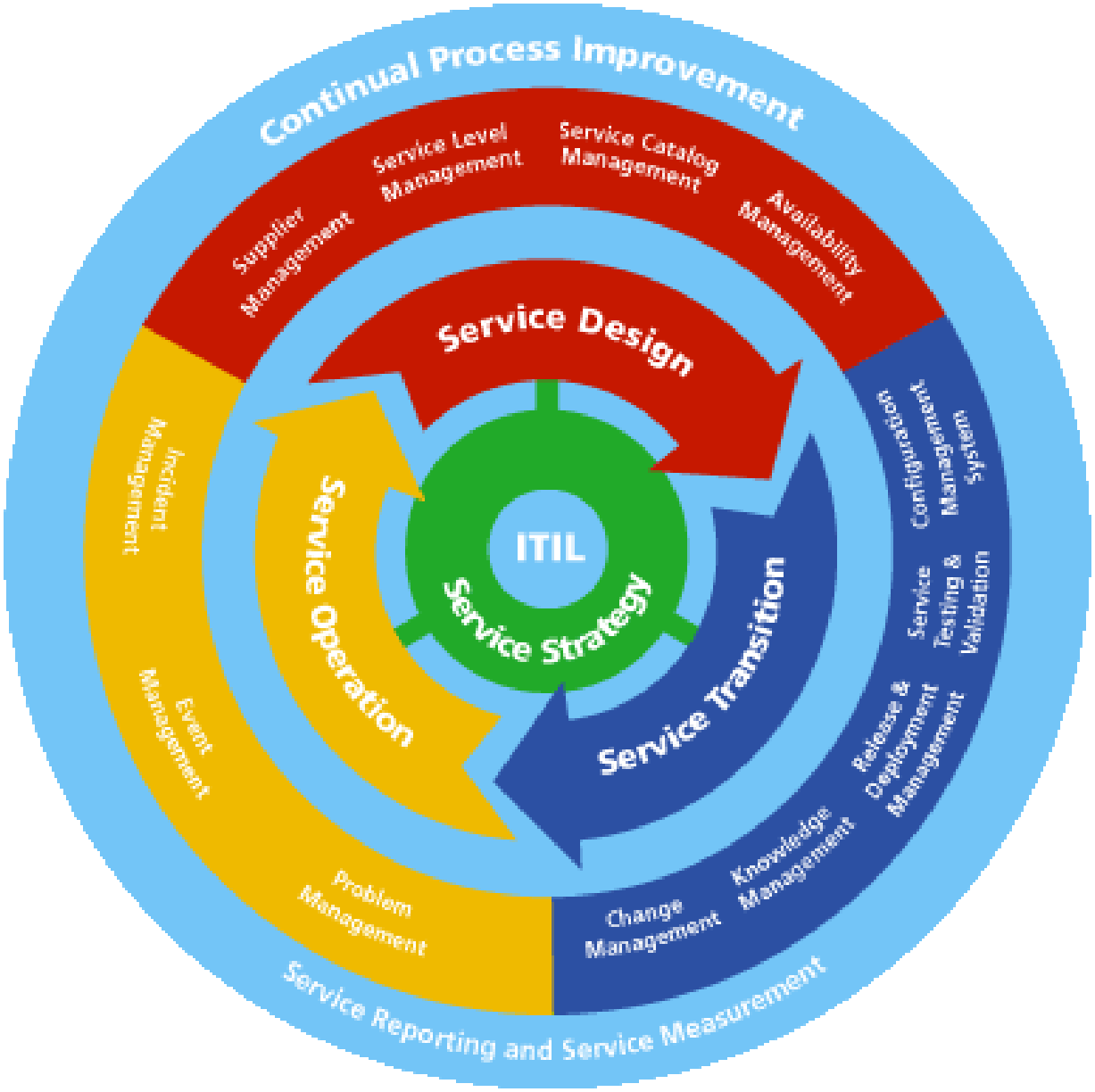
Selesai Dikerjakan

3.3 ITIL (Service Management Framework)

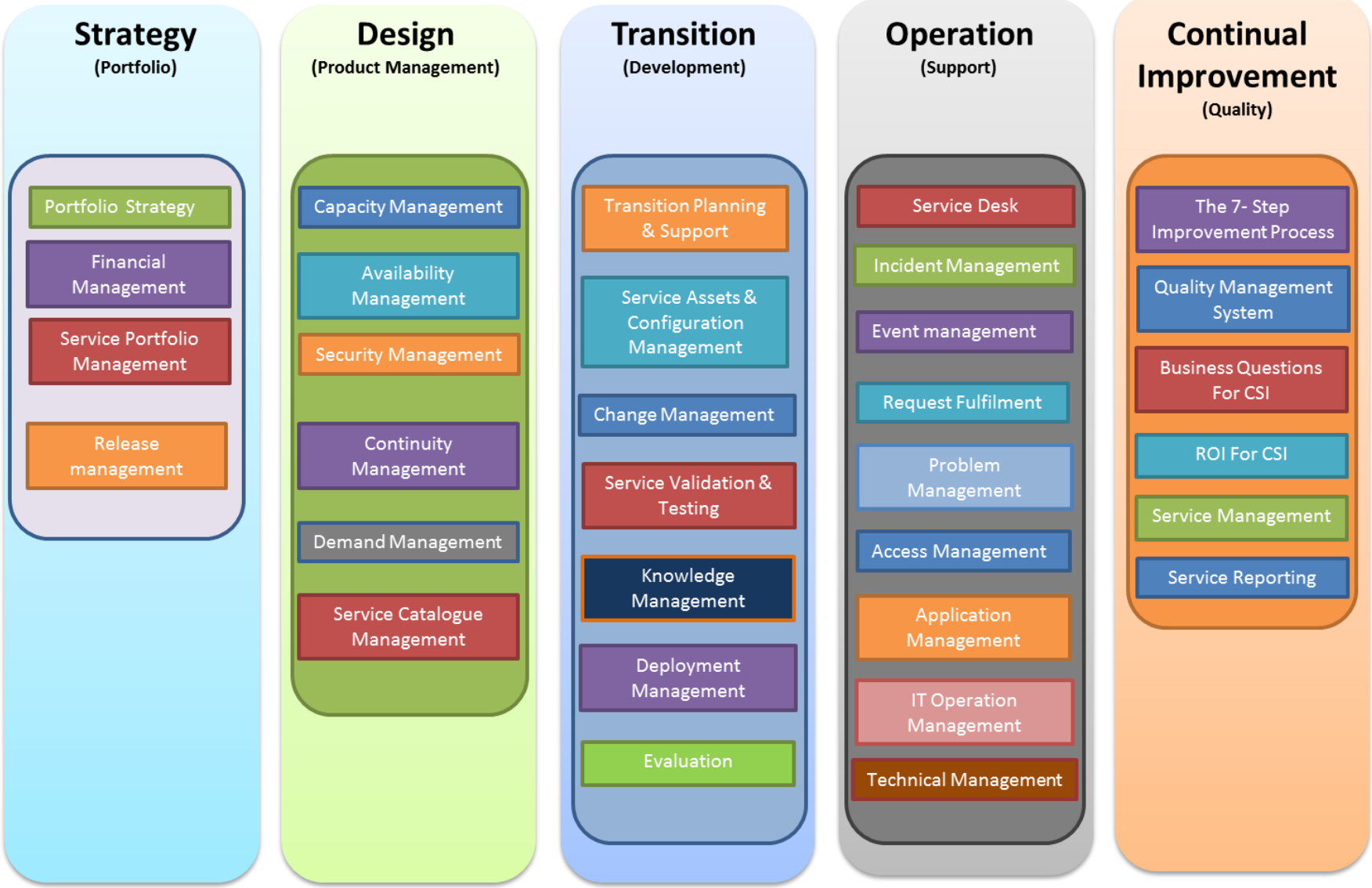
ITIL

- ITIL atau *Information Technology Infrastructure Library* (Pustaka Infrastruktur Teknologi Informasi), adalah suatu rangka kerja dan teknik pengelolaan infrastruktur, pengembangan, serta operasional teknologi informasi
- ITIL diterbitkan dalam suatu rangkaian buku yang masing-masing membahas suatu topik pengelolaan TI
- Nama ITIL dan IT Infrastructure Library merupakan merek dagang terdaftar dari Office of Government Commerce (OGC) Britania Raya
- ITIL memberikan deskripsi detail tentang beberapa praktik TI penting dengan daftar cek, tugas, serta prosedur yang menyeluruh yang dapat disesuaikan dengan segala jenis organisasi TI

ITIL



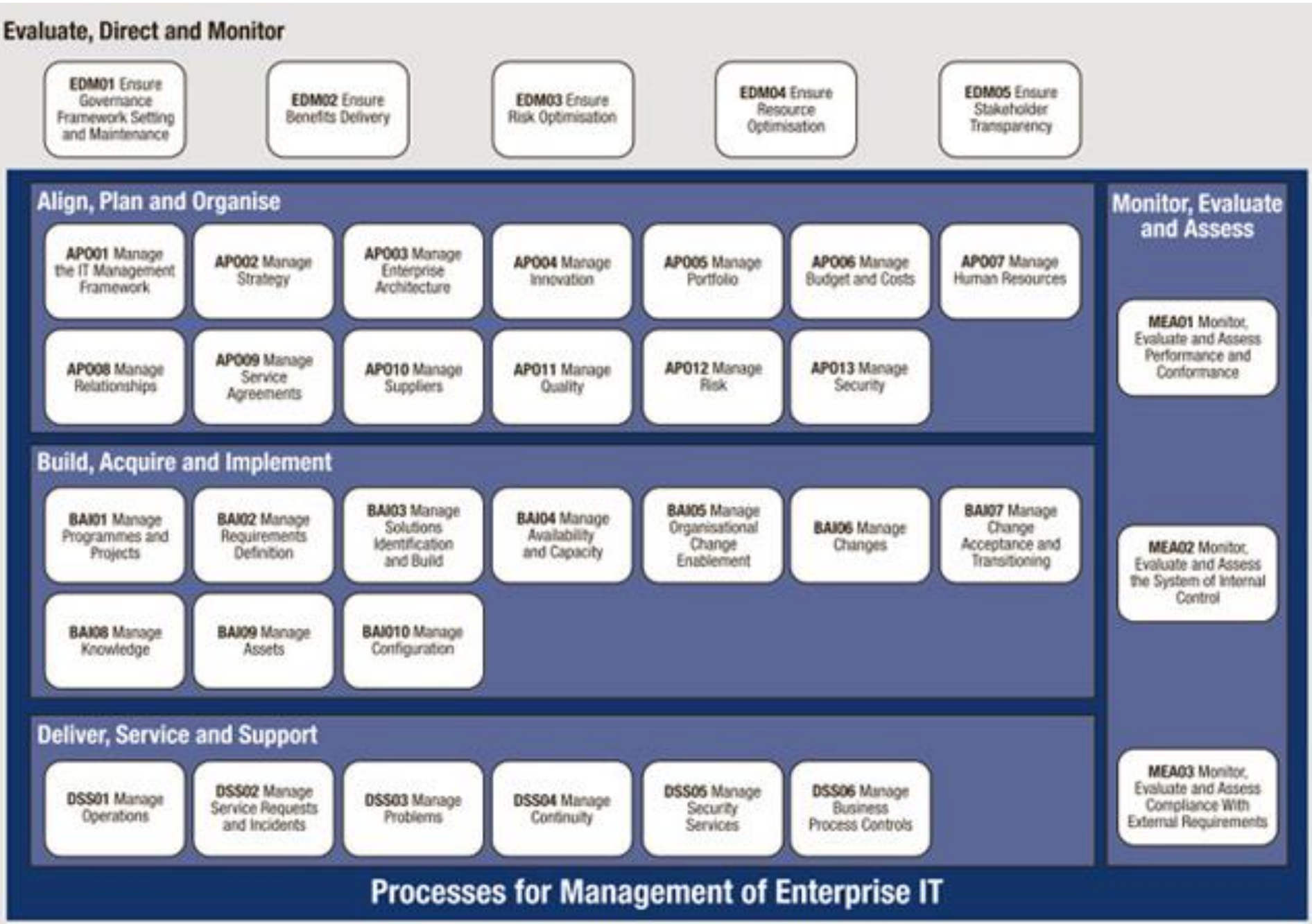
ITIL


Strategy
(Portfolio)
Portfolio Strategy
Financial Management
Service Portfolio Management
Release management
Design
(Product Management)
Capacity Management
Availability Management
Security Management
Continuity Management
Demand Management
Service Catalogue Management
Transition
(Development)
Transition Planning & Support
Service Assets & Configuration Management
Change Management
Service Validation & Testing
Knowledge Management
Deployment Management
Evaluation
Operation
(Support)
Service Desk
Incident Management
Event management
Request Fulfilment
Problem Management
Access Management
Application Management
IT Operation Management
Technical Management
Continual Improvement
(Quality)
The 7- Step Improvement Process
Quality Management System
Business Questions For CSI
ROI For CSI
Service Management
Service Reporting

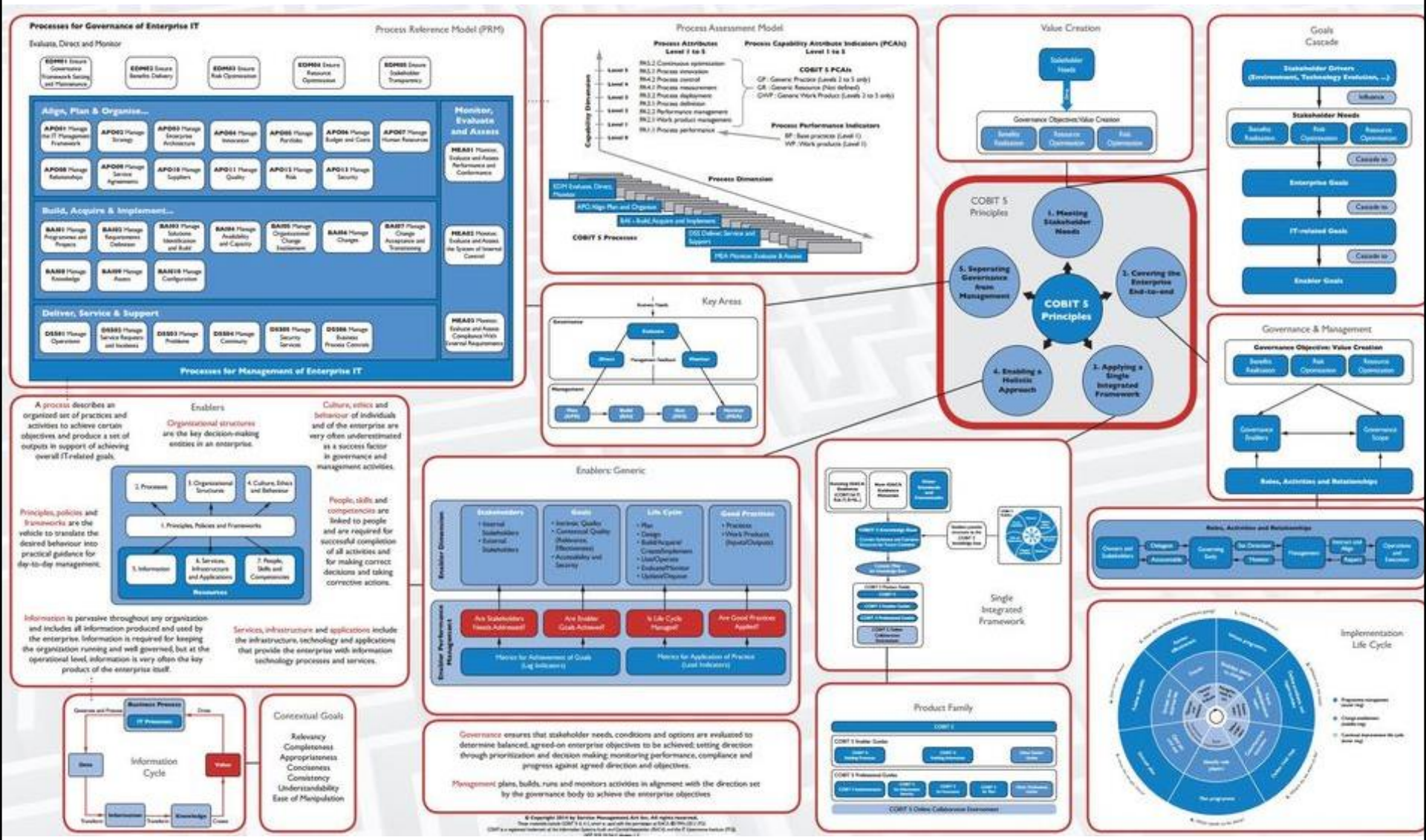
3.4 COBIT (IT Monitoring and Evaluation Framework)

COBIT

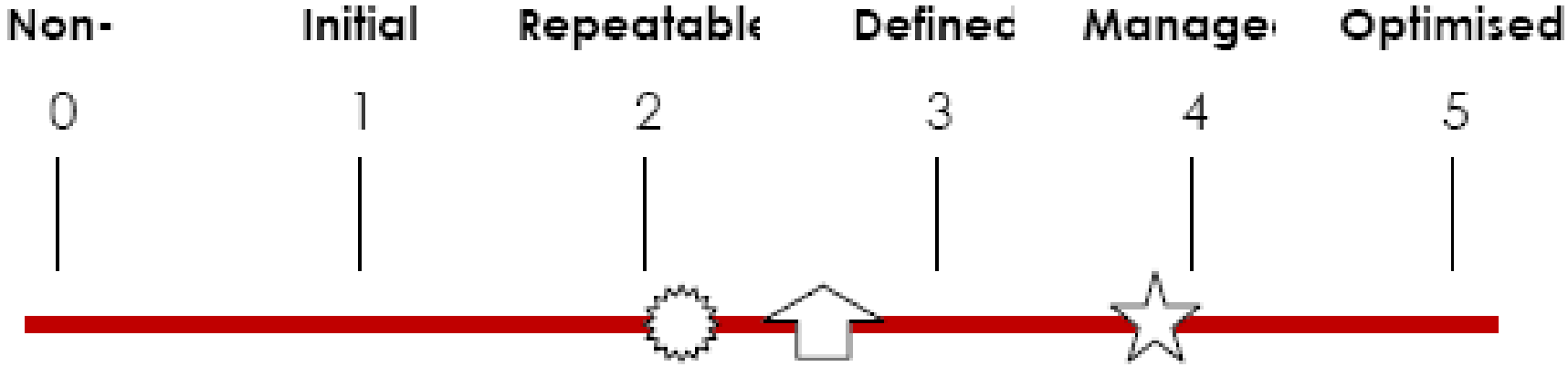
- Control Objective for Information and related Technology (COBIT) adalah panduan standar praktik manajemen teknologi informasi, yang bertujuan untuk menyediakan kebijakan yang jelas dan *good practice* untuk IT governance, mengukur penerapan IT, membantu manajemen mengelola resiko-resiko yang berhubungan dengan IT
- Standar COBIT dikeluarkan oleh IT Governance Institute yang merupakan bagian dari ISACA. COBIT 5 merupakan versi terbaru, dengan cakupan domain:
  1. Align, Plan and Organise
  2. Build, Acquire and Implement
  3. Deliver, Service and Support
  4. Monitor, Evaluate and Asses
- COBIT menyediakan kerangka IT governance dan petunjuk control objective yang detail untuk manajemen, pemilik proses bisnis, user dan auditor


Evaluate, Direct and Monitor
EDM01 Ensure Governance Framework Setting and Maintenance
EDM02 Ensure Benefits Delivery
EDM03 Ensure Risk Optimisation
EDM04 Ensure Resource Optimisation
EDM05 Ensure Stakeholder Transparency
Align, Plan and Organise
APO01 Manage the 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 Agreements
APO10 Manage Suppliers
APO11 Manage Quality
APO12 Manage Risk
APO13 Manage Security
Build, Acquire and Implement
BAI01 Manage Programmes and Projects
BAI02 Manage Requirements Definition
BAI03 Manage Solutions Identification and Build
BAI04 Manage Availability and Capacity
BAI05 Manage Organisational Change Enablement
BAI06 Manage Changes
BAI07 Manage Change Acceptance and Transitioning
BAI08 Manage Knowledge
BAI09 Manage Assets
BAI010 Manage Configuration
Deliver, Service and Support
DSS01 Manage Operations
DSS02 Manage Service Requests and Incidents
DSS03 Manage Problems
DSS04 Manage Continuity
DSS05 Manage Security Services
DSS06 Manage Business Process Controls
Monitor, Evaluate and Assess
MEA01 Monitor, Evaluate and Assess Performance and Conformance
MEA02 Monitor, Evaluate and Assess the System of Internal Control
MEA03 Monitor, Evaluate and Assess Compliance With External Requirements
Processes for Management of Enterprise IT

COBIT 5 Reference Card



COBIT Maturity Model



Kondisi Sekarang

Kondisi rata-rata Perusahaan

Target yang akan dicapai

Non-existent

- Tidak ada pengetahuan akan pentingnya penjajaran manajemen sumber daya manusia TI dengan proses perencanaan teknologi untuk organisasi
- Tidak ada orang atau yang bertanggungjawab secara formal untuk manajemen sumber daya manusia TI

Initial

- Manajemen mengenali kebutuhan akan manajemen sumber daya manusia TI, Tetapi tidak diformalisasikan pada suatu proses atau rencana
- Proses Manajemen sumber daya manusia TI bersifat tidak formal dan sebuah pendekatan yang difokuskan secara reaktif dan operasional untuk penyewaan dan pengaturan personil TI
- Pengetahuan merupakan pengembangan mengenai pengaruh yang kuat dimana perubahan-perubahan bisnis dan teknologi cepat dan solusi-solusi kompleks yang makin bertambah didapat dalam kebutuhan untuk kemahiran-kemahiran yang baru dan tingkatan yang kompeten

Repeatable

- Terdapat pemahaman yang semestinya akan kebutuhan untuk manajemen sumber daya manusia TI
- Ada suatu pendekatan taktis untuk penyewaan dan pengaturan dari personil TI, dikendalikan proyek-kebutuhan spesifik, dari pada oleh suatu arahan teknologi dan suatu keseimbangan pemahaman dari ketersediaan internal dan eksternal dari staf-staf yang memiliki skil
- Pelatihan informal mengambil tempat untuk personil baru, yang menerima pelatihan dalam sebuah dasar yang dibutuhkan

Defined

- Proses untuk pengaturan sumber daya manusia TI telah dikembangkan dan disana terdapat suatu rencana manajemen sumber saya manusia TI yang terdefenisi dan terdokumentasi
- Terdapat suatu pendekatan strategi untuk penyewaan dan pengaturan dari personil TI
- Ada suatu rencana pelatihan formal yang didisain untuk menemukan kebutuhan-kebutuhan bisnis dari sumber daya manusia TI
- Suatu program yang rotasional, didisain untuk memperluas skil-skil manajemen teknikal dan bisnis, dibangun

Managed and Measurable

- Tanggung jawab untuk pengembangan dan pemeliharaan dari suatu rencana manajemen sumber daya manusia TI telah diberikan pada individu yang khusus dengan keahlian dan kemahiran yang penting untuk mengembangkan dan memelihara rencana. Proses bersifat responsif untuk perubahan.
- Organisasi telah memiliki ukuran yang distandarisasikan yang memperbolehkan organisasi tersebut untuk mengidentifikasi penyimpangan-penyimpangan dari rencana, dengan perhatian khusus dalam pengaturan pertumbuhan personil TI.
- Analisa skala kompensasi dijalankan secara periodik untuk memastikan dimana gaji yang kompetitif dalam membandingkan organisasi-organisasi TI. Manajemen sumber daya manusia TI bersifat proaktif, pengambilan ke dalam pengembangan pencatatan jalur karir.

Optimised

- Organisasi memiliki rencana manajemen sumber daya manusiaTI yang efektif dimana yang menemukan kebutuhan-kebutuhan bisnis untuk TI dan pendukung bisnis
- Manajemen sumber daya manusia TI diintegrasikan dengan perencanaan teknologi, pemastian pengembangan optimum menggunakan skil skil TI yang tersedia. Komponen manajemen sumber daya manusia TI konsisten dengan praktek terbaik TI, seperti sebagai kompensasi, pelaksanaan pengkajian ulang, partisipasi dalam forum-forum industri, transfer pengetahuan,pelatihan dan mentoring
- Program-program pelatihan dikembangkan bagi standar-standar teknologi yang baru secara keseluruhan dan produk-produk diprioritaskan untuk tenaga kerja mereka dalam organisasi. Teknologi digunakan dalam penyediaan skil, pelatihan dan kebutuhan kompeten informasi dalam kemudahan dapat mengakses database, untuk membantu proses manajemen sumber daya manusia TI
- Program-program insentif didefenisikan dan dipastikan untuk manajemen TI, sama untuk ketersediaan untuk manajemen senior yang lain dari organisasi, untuk menghadiahi rapat sasaran pelaksanaan TI

Langkah 1. Menentukan Statement

The maturity level descriptions were split into separate statements, and all statements in the maturity level descriptions were separate in the questionnaire

Figure 2—Questionnaire Construction for PO10 Managing Projects (maturity levels 0 and part of 1)

Maturity Level Description	Questionnaire Statements
0 Nonexistent—Project management techniques are not used and the organization does not consider business impacts associated with project mismanagement and development project failures.	• The organization does not use project management techniques. • The organization does not report on project mismanagement effects or development project failures.
1 Initial/*Ad hoc*—The organization is generally aware of the need for projects to be structured and it is aware of the risks of poorly managed projects. The use of project management techniques and approaches within IT is a decision left to individual IT managers. Projects are generally poorly defined.	• The organization is generally aware of the need for projects to be structured. • The organization is aware of the risks of poorly managed projects. • The use of project management techniques and approaches within IT is a decision left to individual IT managers. • Projects are generally poorly defined.

Langkah 2. Menentukan Nilai Kepatuhan

Figure 3—Compliance Level Numeric Values

Agreement with Statement	Compliance Value
Not at all	0
A little	0.33
Quite a lot	0.66
Completely	1

Langkah 3. Membuat Kuesioner

- When the questionnaire is complete, each maturity level will have a set of statements, each with its own compliance value of 0, 0.33, 0.66 or 1
- The compliance value for the scenario can be computed as the average of the compliance level of the statements. In the case of maturity level 3, it is equal to 8.63/11 = 0.78

Figure 4—Questionnaire for the Level 3 Maturity Model of Process PO10

Level	Statements	How much do you agree?				Statements compliance values
		Not at all	A little	Quite a lot	Completely	
1	The IT project management process and methodology have been formally established and communicated.			x		0.66
2	IT projects are defined with appropriate business and technical objectives.			x		0.66
3	Stakeholders are involved in the management of IT projects.				x	1
4	The IT project organization and some roles and responsibilities are defined.				x	1
5	IT projects have defined and updated schedule milestones.			x		0.66
6	IT projects have defined and managed budgets.				x	1
7	IT projects monitoring relies on clearly defined performance measurement techniques.		x			0.33
8	IT projects have formal post-system implementation procedures.			x		0.66
9	Informal project management training is provided.				x	1
10	Quality assurance procedures and post-system implementation activities have been defined, but are not broadly applied by IT managers.			x		0.66
11	Policies for using a balance of internal and external resources are being defined.				x	1
					Total level: 8.63	

Langkah 4. Menghitung Nilai Kepatuhan

Working in the same way on the other maturity levels, one can compute a compliance value for all the maturity level form 0 to 5

Figure 5—Computation of the Maturity Level Compliance Values

Maturity level	Sum of statements compliance values (A)	Number of maturity level statements (B)	Maturity level compliance value (A/B)
0	0.00	2.00	0.00
1	0.00	9.00	0.00
2	3.00	6.00	0.50
3	8.63	11.00	0.78
4	6.97	9.00	0.77
5	6.31	8.00	0.79

Langkah 5. Normalisasi Nilai Kepatuhan

The ability to see the compliance values as a description of the "contribution" of each maturity level scenario to the overall maturity level of the organization

Figure 6—Computation of the Normalized Compliance Vector

Level	Not normalized compliance values (A)	Normalized compliance values [A/Sum(A)]
0	0.00	0.000
1	0.00	0.000
2	0.50	0.176
3	0.78	0.275
4	0.77	0.272
5	0.79	0.277
Total:	**2.84**	**1**

Langkah 6. Menghitung Total Maturity Level

Finally, the maturity level summary for the process was computed by combining the normalized compliance values for each maturity level as shown in figure 7

Figure 7—Computation of the Summary Maturity Level

Level	Normalized compliance values (B)	Contribution (A*B)
0	0.000	0.00
1	0.000	0.00
2	0.176	0.35
3	0.275	0.83
4	0.272	1.09
5	0.277	1.38
	Total maturity level:	**3.65**

3 Dimension of Maturity

- Tiga dimensi dalam kerangka kerja COBIT adalah:
  1. Kemampuan
  2. Kinerja
  3. Kontrol
- Dapat digunakan untuk menilai suatu proses TI dalam situasi tertentu secara lebih akurat
- Penerapan dimensi ini diserahkan kepada pengguna COBIT untuk memutuskan tergantung pada bagaimana detail dan tepat penilaian maturity diperlukan dan lingkup area target penilaian

3 Dimension of Maturity: Capability

- Kemampuan adalah tingkat kematangan yang dibutuhkan dalam proses untuk memenuhi kebutuhan bisnis (idealnya didorong oleh usaha dan tujuan TI yang jelas)
- COBIT berfokus pada kemampuan dan membantu perusahaan mengenali kemampuan yang paling sesuai dengan kebutuhan proses tertentu

3 Dimension of Maturity: Performance

- Ukuran dari kinerja yaitu bagaimana dan di mana kemampuan perlu digunakan didasarkan pada kebutuhan bisnis, dan keputusan investasi berdasarkan pertimbangan biaya dan manfaat

- Sebagai contoh: tingkat keamanan yang tinggi mungkin harus berfokus pada hanya untuk sistem perusahaan yang paling kritis

3 Dimension of Maturity: Control

- Kontrol adalah ukuran kontrol aktual dan pelaksanaan proses, dalam mengelola risiko dan memberikan nilai yang diharapkan sesuai dengan kebutuhan bisnis
- Sebuah proses mungkin tampak pada tingkat kemampuan yang tepat dengan karakteristik manajemen yang tepat, tapi masih gagal karena kurangnya pengendalian desain
- Ini merupakan penilaian terhadap tujuan pengendalian COBIT dianggap perlu untuk proses itu
- COBIT memberikan model maturity generik untuk pengendalian internal, dan proses PO6 dan ME2 membantu melembagakan kebutuhan untuk kontrol yang baik

Terima Kasih

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