

Global R&D Project Management applying BPM Solution

Information Strategy Team
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LG Electronics

Stylish Design & Smart Technology



**Home
Entertainment**



**Mobile
Communications**



**Home
Appliance**



**Air
Conditioning**



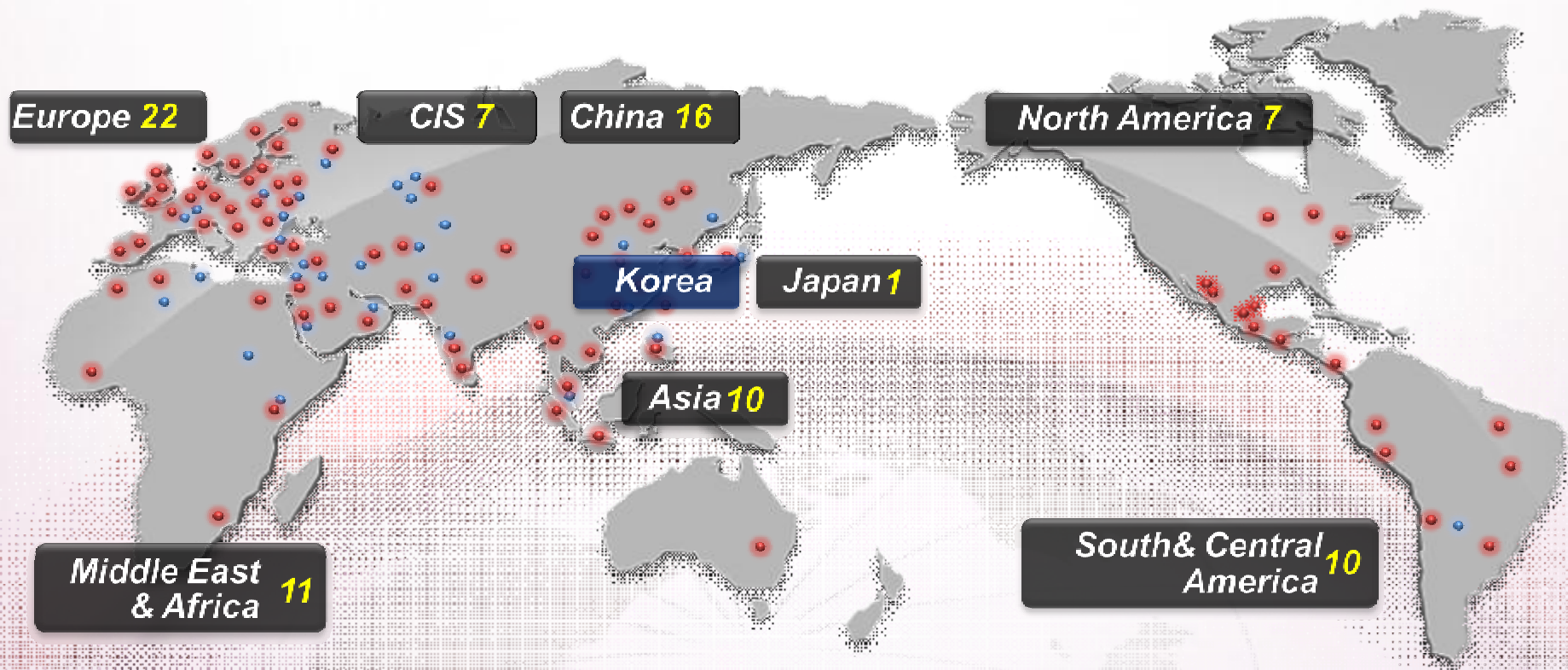
**Business
Solutions**

Global Network



Global Operations **115**

Workforce **84,000**



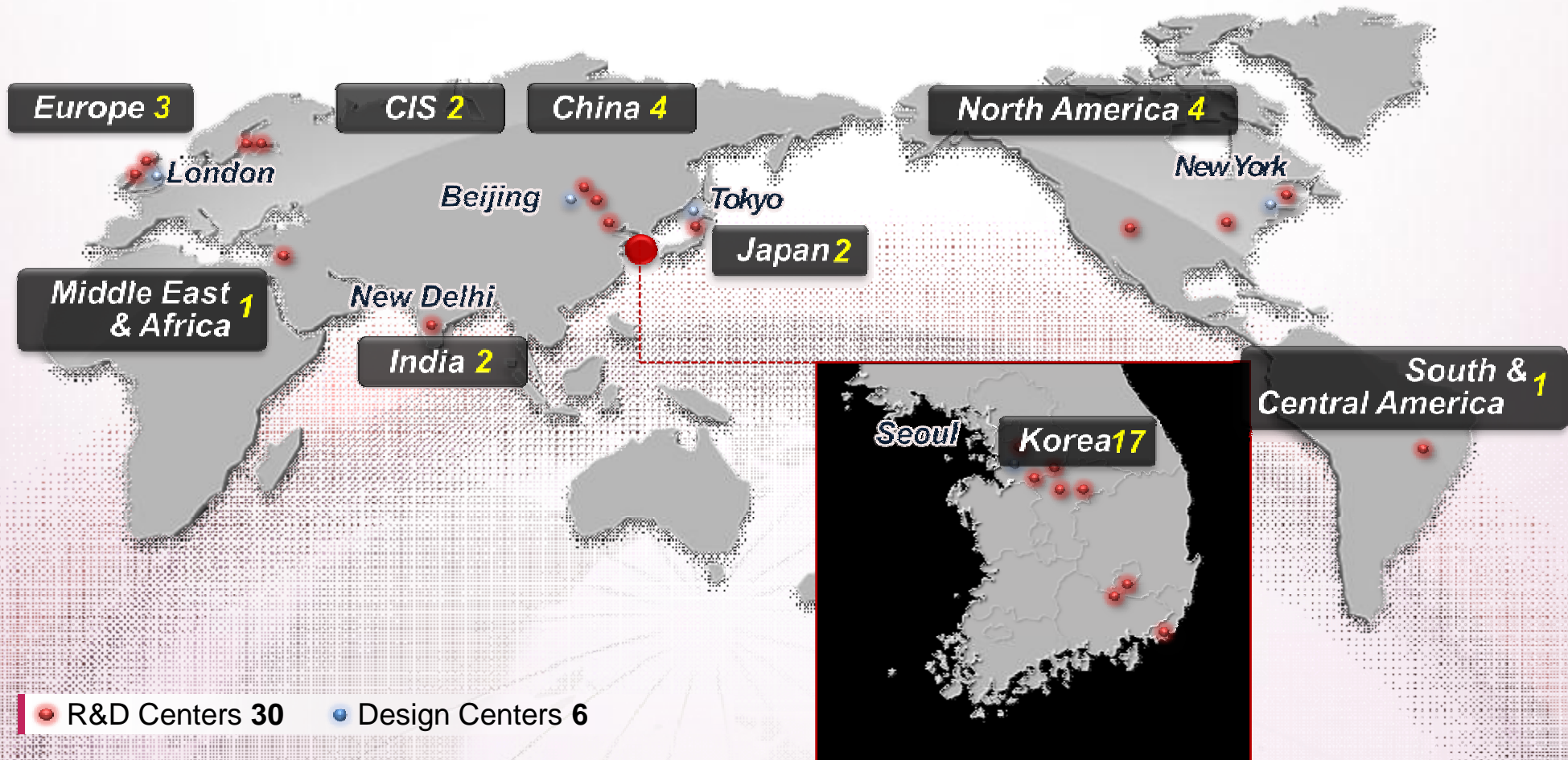
● Subsidiaries 84 ● Liaison offices 31

Global Network

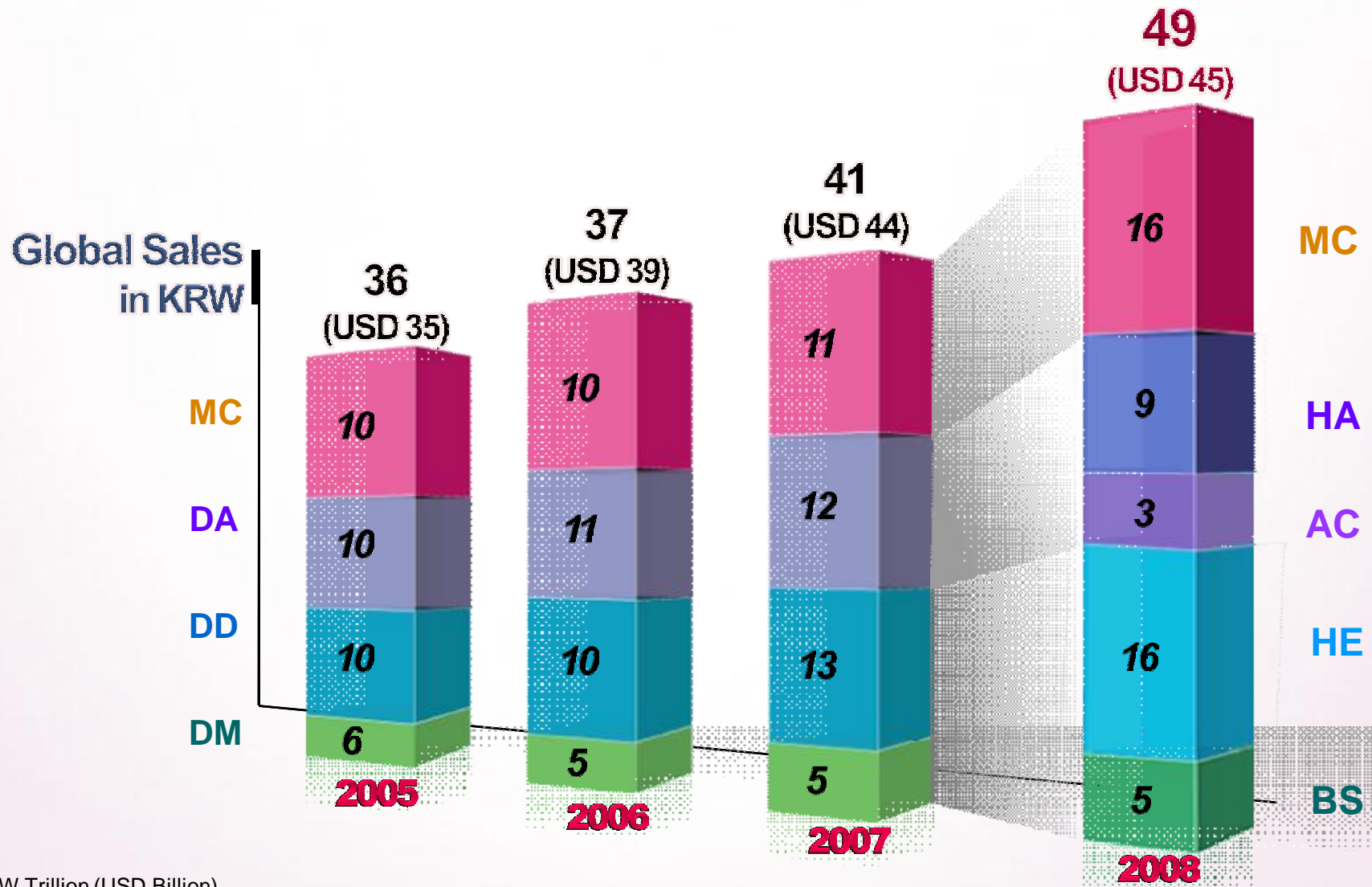


Global R&D, Design Centers **36**

Workforce **17,000**



Performance



- Unit : KRW Trillion (USD Billion)
- 1 USD = 1,024 KRW (2005) / 955 KRW (2006) / 929 KRW (2007) / 1,103 KRW (2008)
- Non-consolidated only.
- Revenues upto 2007 are based on four traditional business units
 - Digital Appliance (DA), Digital Display (DD), Digital Media (DM) and Mobile Communications (MC)

Contents

1. Introduction

2. Progress

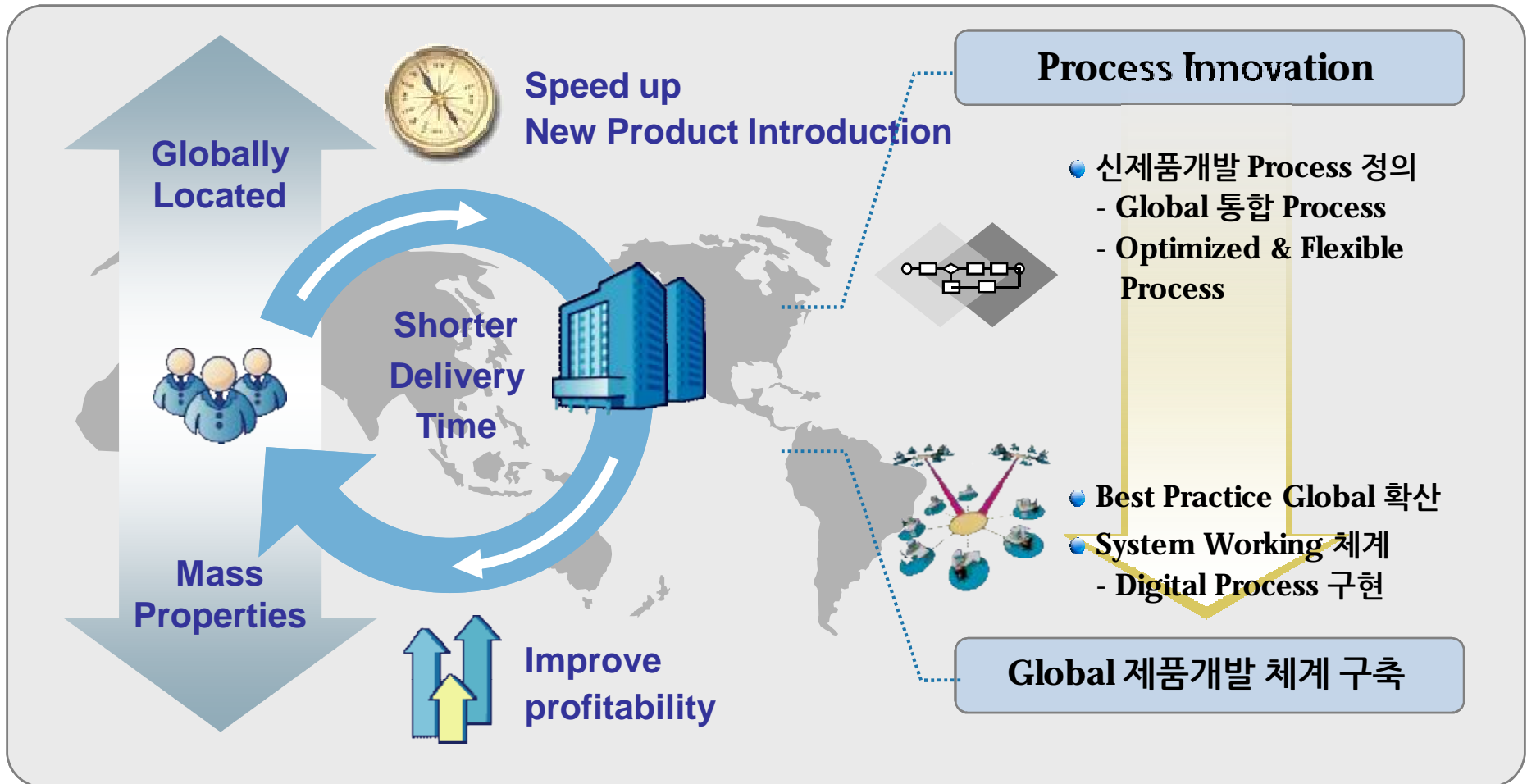
3. Best Practice

4. Value of PMS system

5. Future Plan

1. Introduction : Global R&D environment of LG Electronics

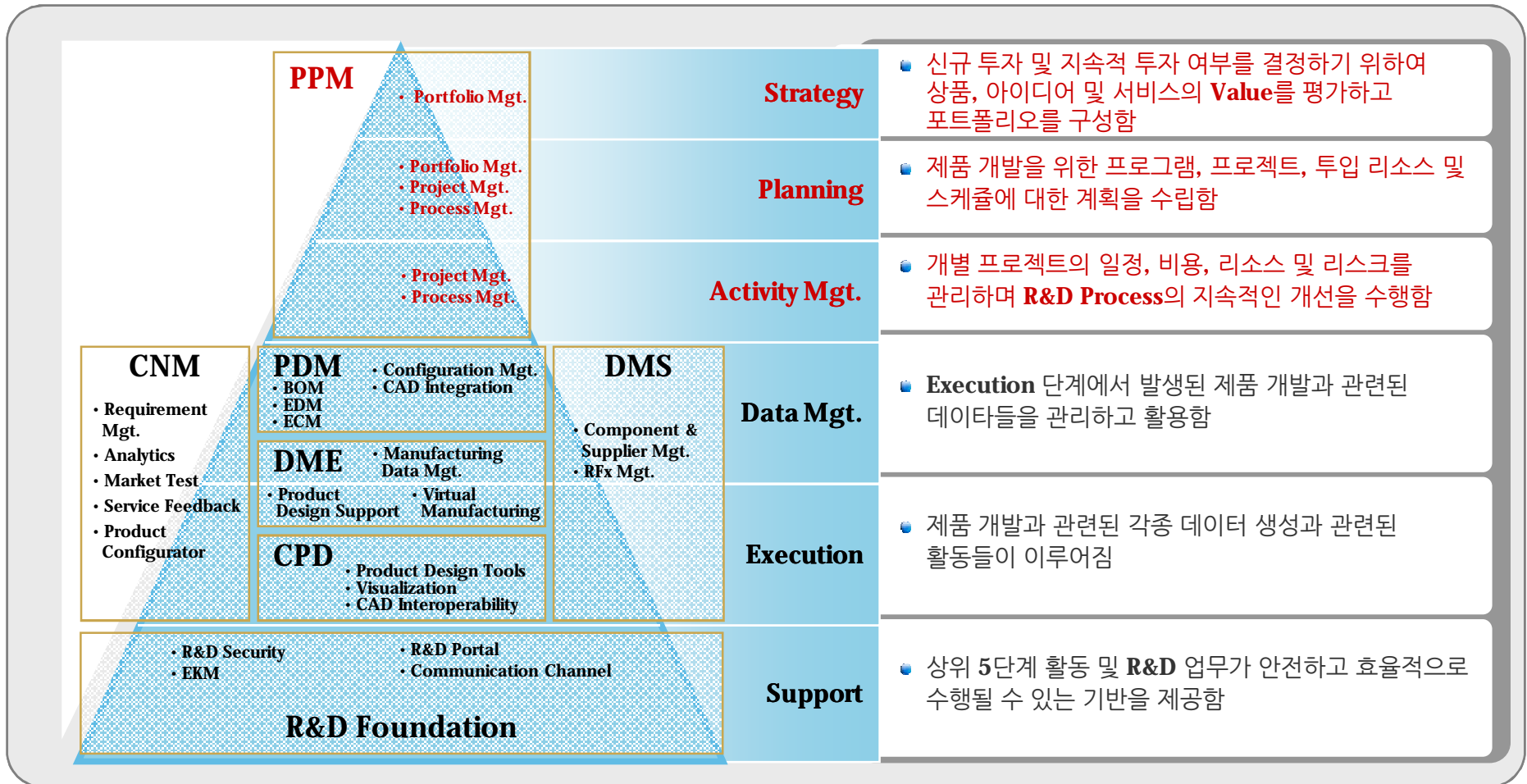
Global R&D 추진 방향성



1. Introduction : Project Management in PLM

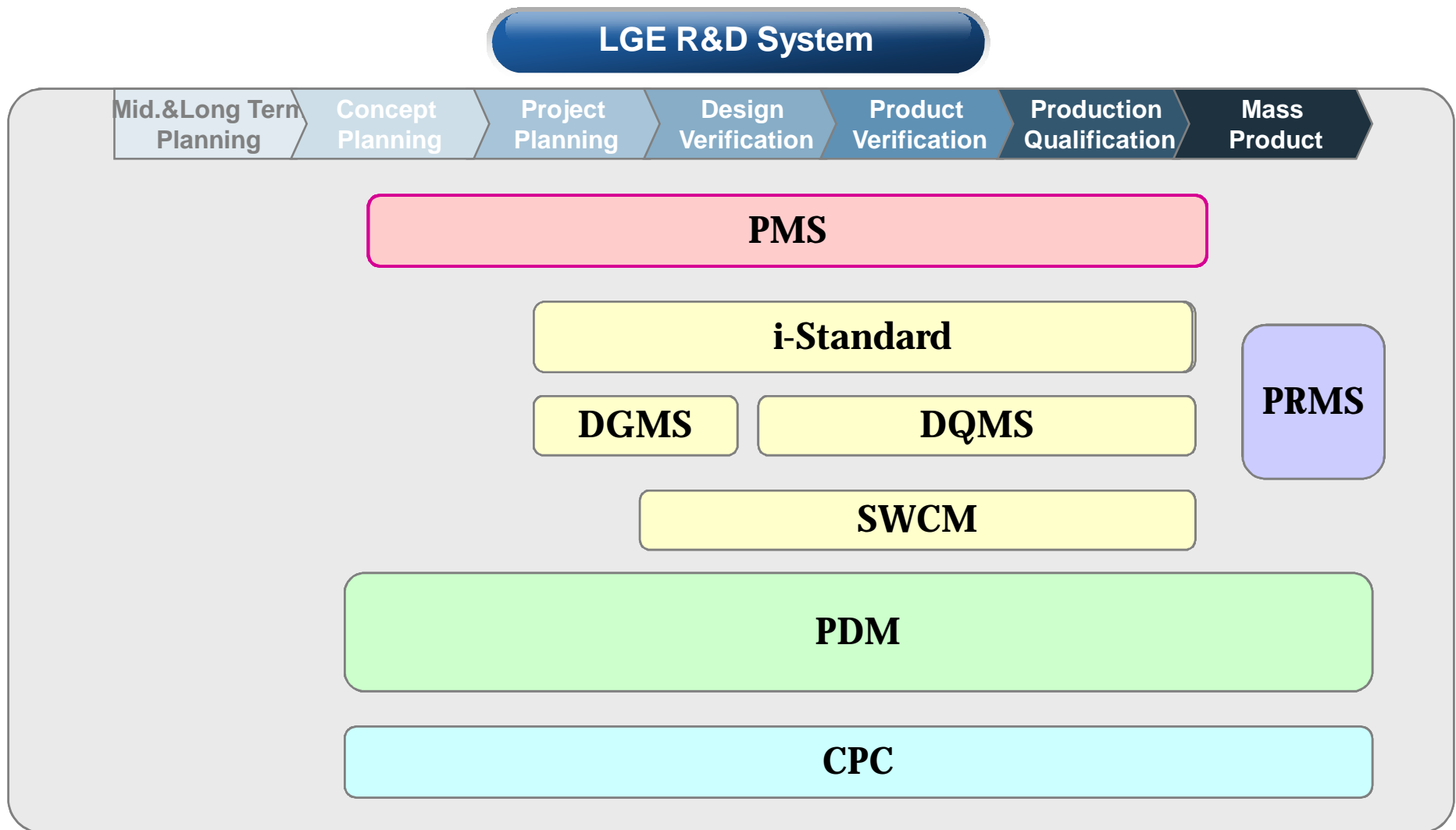
PLM Six Layer

*1) 참고 : AMR Research Report, 2002.09



*PPM : Product Portfolio Mgt. / CNM : Customer Needs Mgt./ DMS : Direct Material Sourcing/
 PDM : Product Data Mgt./ DME : Digital Manufacturing & Eng./ CPD : Collaborative Product Design

1. Introduction : LGE R&D System Coverage



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1. Introduction

2. Progress

3. Best Practice

4. Value of PMS system

5. Future Plan

2. Progress : Background

Challenges

Need to Manage Global Product Development

Differences in Product Development Process

Differences in System Capability

Lack of Scalability in Process & System

Goal

q Improve Product Development Process

§ Standardization

§ Optimization

q Implement a reliable, comprehensive Project Management System

§ Global Single System

§ Development Process is integrated with System

2. Progress : Set the Goals

ERRC

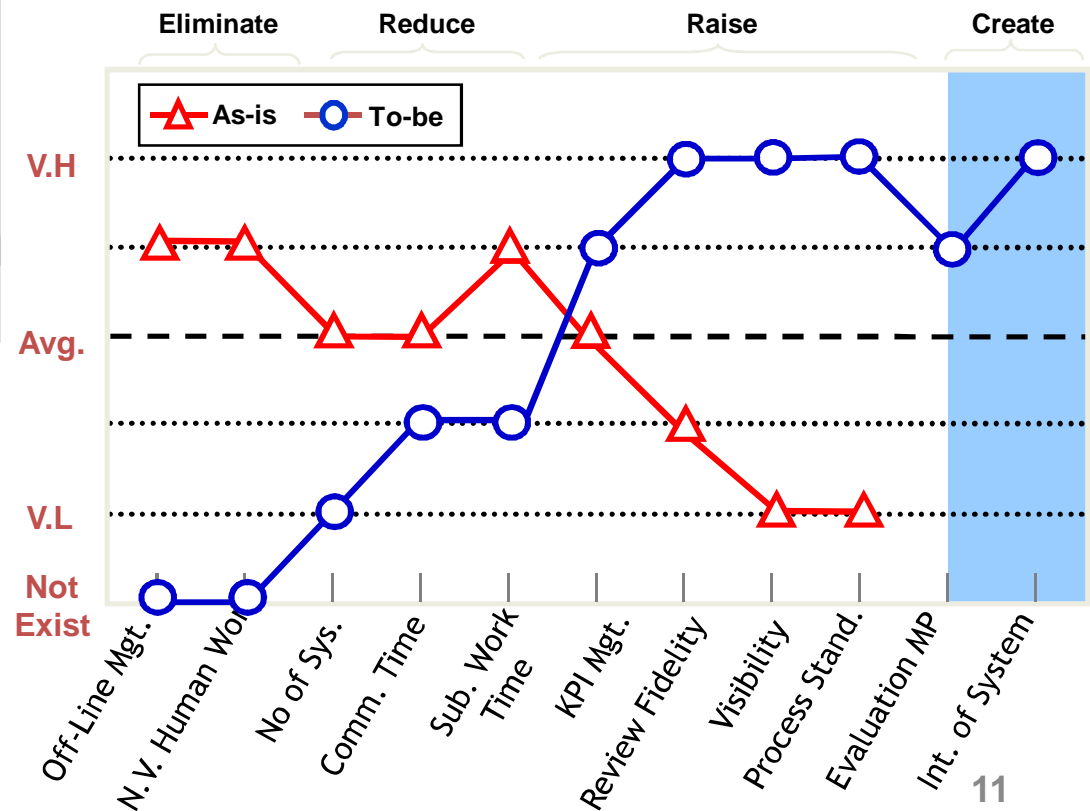
Eliminate	Reduce
<ul style="list-style-type: none"> § Off-line Management § Non Valuable Human Working 	<ul style="list-style-type: none"> § Communication Time § Number of Systems § Subsidiary Working Time
Raise	Create
<ul style="list-style-type: none"> § Visibility § KPI Management § NPI Review Fidelity § Process Standardization 	<ul style="list-style-type: none"> § Evaluation after MP § Integration of System

Strategic Canvas

Focus : Enhancement of Project Management in system

Compelling Tagline

“Launch Qualified, Profitable Product on Time”



2. Progress : Major Objectives

Big Y

Little y

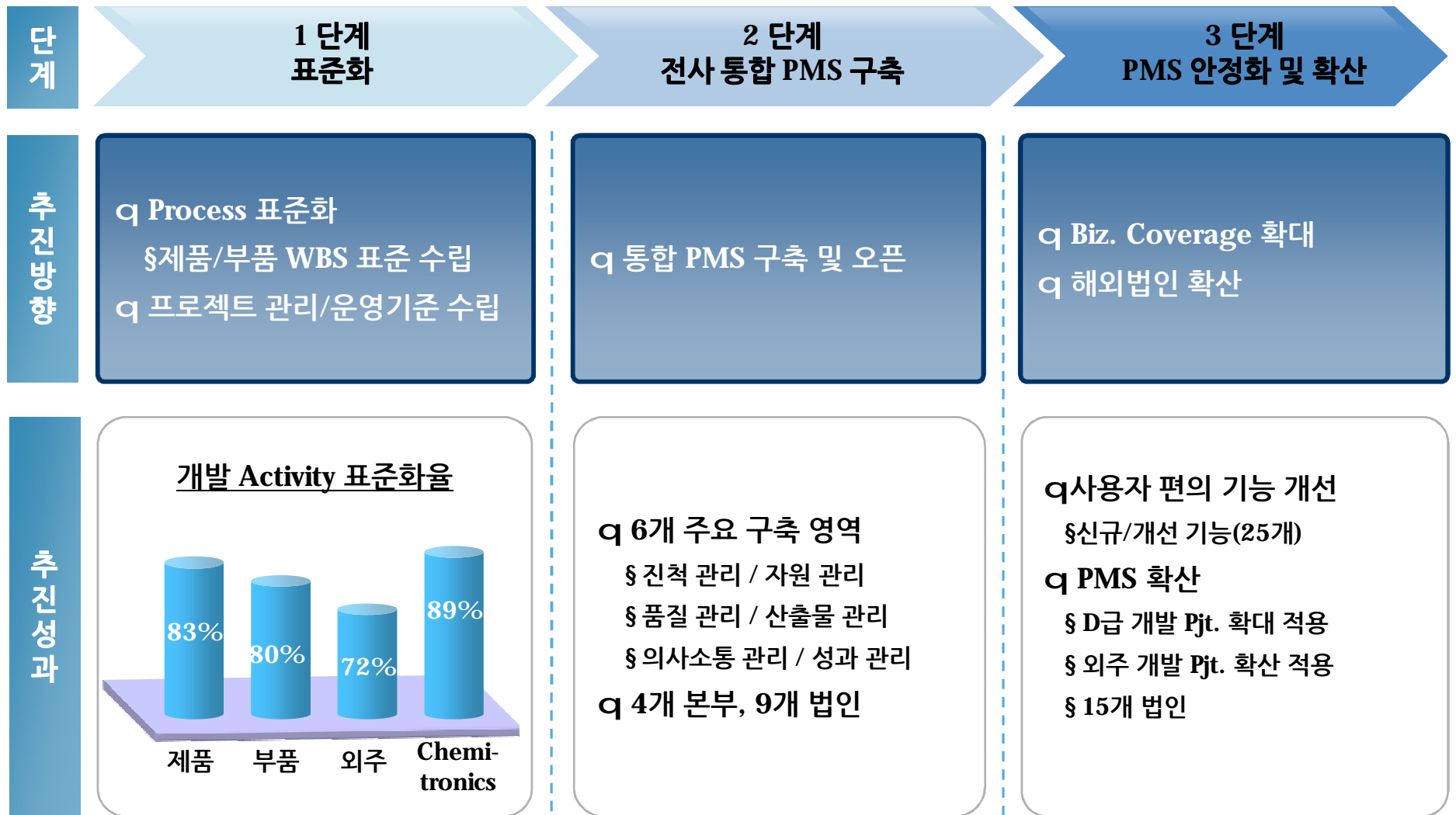
Project Management Capability

- ✓ Establish Standard Process
- ✓ Enhance Visibility of Project Status
- ✓ Assess Risk early
- ✓ Measure and Monitor Q,C,D KPI

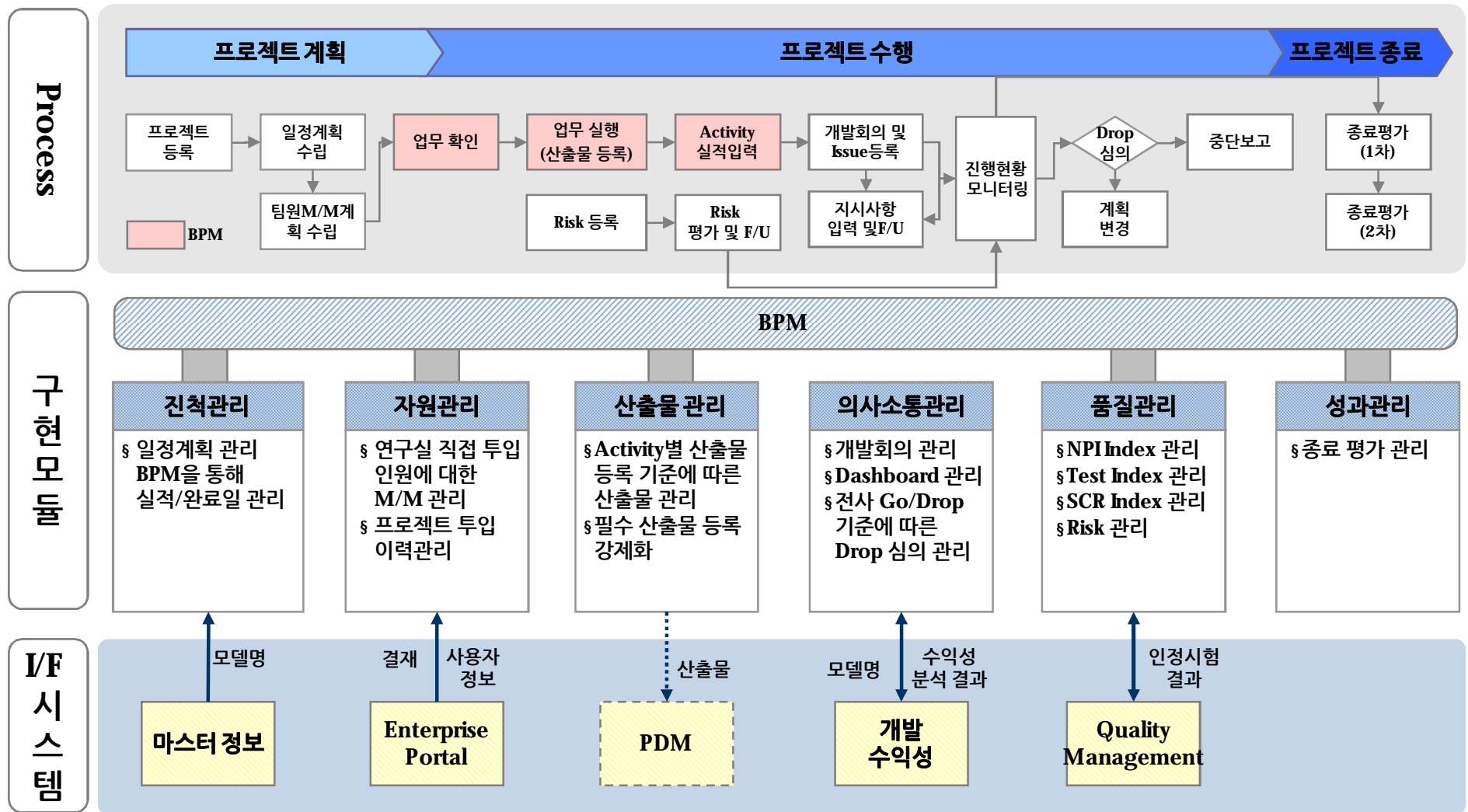
Product Value

- ✓ Enhance NPI & SCR Review Process
- ✓ Launch Product on Right Time
- ✓ Tracking & Monitoring Performance

2. Progress : 추진 단계



2. Progress : System Overview



2. Progress : PMS Functionality

진척관리

- q 본부/개발 등급별 정의된 표준 WBS 기준으로 일정계획/변경관리
 - 공통 Activity / 본부별 선택적용 Activity 구분
 - 일정계획은 PL이하고 일정변경은 PL, 개발 단계별 주관부서가 진행
- q BPM 적용을 통한 진척 관리
 - 업무 담당자 To-Do List 할당 (IGEP)

자원관리

- q 개인별 프로젝트 투입 이력관리
 - 수행 프로젝트, 수행 Activity
- q 프로젝트별 팀원 M/M 투입 계획 및 실적관리
 - 프로젝트 등록시 팀원 M/M 계획 수립 (PL)
 - 월별 M/M 실적 입력 (팀원)

품질관리

- q 제품개발 단계별 품질 점검
 - NPI Index : Process 충실도
 - Test Index : 품질 평가

산출물관리

- q WBS 상 Activity별 필수 / 권고 산출물을 정의
- q 필수 산출물과 Activity 완료처리 연계
 - 필수 산출물 등록 시 결재 필요
 - 필수 산출물 등록 시 완료처리

의사소통관리

- q 프로젝트 KPI 모니터링
 - Cost : 영업 이익 달성률, 목표 재료비 달성률
 - Delivery : 개발 일정 지연일
 - Quality : NPI Index, Test Index
- q 개발 회의 지원
- q 전사 Go/Drop 기준과 연계한 Drop 대상 프로젝트 관리

성과관리

- q 개발완료 Activity를 정례화하고, 프로젝트 Q,C,D 측면 KPI 기준 계획 대비 실적 평가
- q MP +3/+6/+12 개월 시점에 Market 실적 데이터 기준으로 KPI재평가

2. Progress : 진척관리 주요화면

상/하향식 Critical path 및 Activity별 통계공수 활용한 일정 Simulation 및 자동 Scheduling

Project Information DV PMS PROJECT MANAGEMENT SYSTEM

Schedule

All Activity All Event ALL LOWER

Skip	Activity	Owner	ST	Plan Start	Plan End	Duration	Status	Desc
	PV-T Review 1(Self)	박용출	1	2006-10-24	2006-10-24	1		
	PV-T Review 1(Final)	박용출	5	2006-10-25	2006-11-03	10		
	PV 품평회	박용출	1	2006-10-26	2006-10-26	1		
	PO 단계		43	2006-10-27	2006-11-16	21		
	SVC 기술교육	박용출	3	2006-10-27	2006-10-31	5		
	규격승인	박용출	1	2006-10-28	2006-10-28	1		
	PQ 6σ 활동	박용출	1	2006-10-29	2006-10-29	1		
	PQ 준비 점검	박용출	1	2006-10-30	2006-10-30	1		
	PQ 제품 제작	박용출	1	2006-10-31	2006-10-31	1		
	PQ 제품 검토	박용출	1	2006-11-01	2006-11-01	1		
	PQ 인정 시험 의뢰	박용출	1	2006-11-02	2006-11-02	1		
	PQ 인정 시험	박용출	8	2006-11-03	2006-11-06	4		
	DGMS C/List - Mapping / Check	박용출	1	2006-11-04	2006-11-04	1		
<input type="checkbox"/>	PQ 3F 평가	박용출	1	2006-11-05	2006-11-05	1		
	PQ Field Test	박용출	1	2006-11-06	2006-11-06	1		
	FRP(Final Review for Production)	박용출	1	2006-11-07	2006-11-07	1		
	신뢰성 시험 중간점검	박용출	29	2006-11-08	2006-11-09	2		
	수익성 분석	박용출	1	2006-11-09	2006-11-09	1		
	PQ-SCR Review(Self)	박용출	5	2006-11-10	2006-11-10	1		
	PQ-SCR Review(Final)	박용출	1	2006-11-11	2006-11-11	1		

완료 인터넷

2. Progress : 자원관리 주요화면

투입 인원에 대한 타 프로젝트 MM계획 현황을 검색 후 해당 프로젝트에 Assign

The screenshot shows the PMS Member Management MM Plan interface. The main window displays a table of members with columns for Name, Batch, Sum, and monthly allocations from 2006/07 to 2006/11. A red dashed box highlights the '김규락' member, and a red dashed arrow points to a search window.

The search window, titled 'Member Management MM Plan', shows the following details for the selected member:

- Name: 김규락
- E-mail: gikim
- Year: 2006

The search results table shows the following projects and models:

Project	Model	Event	P/L	M/M
[TEST]DB	CCD-8080B TEST	CP	백용출	0.7
[TEST]SKIP TEST	MWO-5	PV	백용출	0.1

2. Progress : 품질관리 주요화면

NPI Review시 Check List 항목에 대한 각각의 지시사항을 관리하여 업무 수행 품질을 높임

The screenshot displays the PMS (Project Management System) interface. On the left, a 'Create Order' window is open, showing fields for Division (DEV1), Project, Orderer, F/U Owner, Due Date (2006-08-15), and Subject (DV-T Review / 설계 Checklist 적용률 (기구)). The main window shows a table with columns: Point, Owner, Document, Self, Final, Remark/Comment, and Order. A red dashed line highlights a row with '84.60%' in the Remark/Comment column.

Point	Owner	Document	Self	Final	Remark/Comment	Order
Review시 필참부서 참여	개발실	Risk Assessment	G	Y		
Review의 Issue에 대한 대책안 수립	개발실	Risk Assessment	G	NA		
항목 확인 및 대책 (충실도)	개발실		G	G		
항목 확인 및 대책 (충실도)	개발실		G	G		
항목 확인 및 대책 (충실도)	개발실		G	G		
능 (TIS/TRP) 항목 대책 수립 (충실도)	개발실		G	G		
G 항목 확인 및 대책 수립 (충실도)	개발실		G	G		
TDR 검토사항 대책 수립 (충실도)	개발실		G	G		
hecklist 적용률	개발실	설계 Checklist	G	Y	84.60%	
hecklist 적용률	개발실	설계 Checklist	G	G	94.70%	

2. Progress : 품질관리 주요화면

본부별/사업부별 각각의 NPI Review에 대한 실시 내역을 관리

Number Of Npi Index

Division : ALL Develop Site : ALL Prod.Gr. : ALL

The Number Of Projects

Division / NPI Review			1	2	3	4
A/C	E-Review		3	3	1	3
	M-Review		0	0	0	2
	S-Review		2	4	5	8
	SCR-Review		2	3	2	4
	T-Review		3	1	1	7
	TEST-Review		2	4	1	6
Sub-Total			12	15	10	30
LIV	E-Review		1	2	2	5
	M-Review		1	3	5	9
	S-Review		1	2	4	7
	SCR-Review		1	2	2	5
	T-Review		5	4	9	18
	TEST-Review		2	1	1	6
Sub-Total			11	14	23	37
E-Review			0	1	0	0

Target Project List

Total : 15 Projects Division : A/C / Date : 2006.7

No.	Area	Product	Grade	Division	Project / Model	P/Leader	Review Index [T Review]					Avg.
							CP	PP	DV	PV	PQ	
1	KOREA	W-RAC	A	A/C	ABCDEFGHIJFLM	karlo	96	89				92
2	KOREA	W-RAC	A	A/C	ABCDEFGHIJFLM	karlo	96	89				92
3	LOEIL	Ducted Split	B	A/C	ABCDEFGHIJFLM	HSHOREC	94	86				91
4	KOREA	Slim	B	A/C	ABCDEFGHIJFLM	adult2	93					93
5	KOREA	Cassette	B	A/C	ABCDEFGHIJFLM	ilovehee	85	86	88	81	83	83
6	LGETA	PAC	B	A/C	ABCDEFGHIJFLM	mau	88					88
7	LGETH	Concealed Duct	C1	A/C	ABCDEFGHIJFLM	somkeat			97			97
8	KOREA	PAC	C2	A/C	ABCDEFGHIJFLM	jaejamimi				91		91
9	LOETA	Multi-Inverter	C1	A/C	ABCDEFGHIJFLM	caczhangue			80			80
10	KOREA	Cassette Stand	C2	A/C	ABCDEFGHIJFLM	youngmo				82		82
11	KOREA	Convertible	C2	A/C	ABCDEFGHIJFLM	thankyusu				91		91
12	LGETA	Slim	C1	A/C	ABCDEFGHIJFLM	lipengac			100			100
13	KOREA	Split Wall Mount	C2	A/C	ABCDEFGHIJFLM	ducksteel			84	80		82
14	KOREA	Split Wall Mount	C2	A/C	ABCDEFGHIJFLM	saroum				100		100
15	KOREA	Split Wall Mount	C2	A/C	ABCDEFGHIJFLM	saroum				75		75
Average							92	92	87	93	83	91

2. Progress : 산출물관리 주요화면

NPI Review시 Check List에서 해당 Event에서 생성된 모든 문서를 조회함으로써 관련된 Point에 대한 평가를 용이하게 함

The image shows two overlapping browser windows from the PMS system. The left window displays the 'NPI DV-T Review' page for project [LT-H548DLE1 / LT-H548DLE1.ANWBURU]. It features a 'Documents' tab and a table with columns for 'Self', 'Final', 'Index', 'State', and 'Result/Comment'. A red dashed arrow points from the 'Documents' tab to the 'Documents' window on the right.

The right window, titled 'Documents', shows a list of documents generated for the event 'DV'. The table includes columns for 'No.', 'Event', 'Document', 'File', 'Author', 'Approval', 'Type', and 'Created Date'. The documents listed include various reports and checklists related to the review process.

No.	Event	Document	File	Author	Approval	Type	Created Date
1	DV	검토결과서	54K_능력데이터.alz	김광연	Working	ADD	2006-07-07
2	DV	평가결과서	54K_능력데이터.alz	김광연	Working	ADD	2006-07-07
3	DV	pp-scr 공정불량 review	LT-H548DLE1_SCR개선.ppt	서성현	Working	ADD	2006-07-25
4	DV	LT-H548DLE1_s-review 개선 대학서	LT-H548DLE1_s-review 개선 대학서.ppt	김기화	Working	ADD	2006-07-27
5	DV	LT-H548DLE1_s-review 개선 대학서	LT-H548DLE1_s-review 개선 대학서.ppt	김기화	Working	ADD	2006-07-25
6	DV	FMEA	LT-H548DLE1_FMEA_060721.xls	이상혁	Working	ADD	2006-07-22
7	DV	설계 해결포	LT-H548DLE1_설계 해결포_060721.xls	이상혁	Working	ADD	2006-07-22
8	DV	EMI 자료	LT-H548DLE1_노이즈 필터 변경_060721.ppt	이상혁	Working	ADD	2006-07-22
9	DV	Software 구성도	LT-H548DLE1_Software 구성도_060721.xls	이상혁	Working	ADD	2006-07-22
10	DV	Check 리스트	LT-H548DLE1_Checklist_060721.ppt	이상혁	Working	ADD	2006-07-22
11	DV	SCR 개선 현황	LT-H548DLE1_SCR 개선 현황_060721.ppt	이상혁	Working	ADD	2006-07-22
12	DV	Check 리스트	LT-H548DLE1_Checklist_060721.ppt	이상혁	Working	ADD	2006-07-22
13	DV	마케팅 인장 시험 결과서	LT-H548DLE1_마케팅 결과 보고서_060721.ppt	이상혁	Working	ADD	2006-07-22

2. Progress : 의사소통관리 주요화면

Check Point, 보고/공유내용 중심으로 개발회의 화면 구현

http://pms.lge.com:5010/jsp/RetrieveMainDevMeetingCmdByMet.taf - Microsoft Internet Explorer

Development Meeting

Division:
 Develop Site:
 Meeting Type:
 Model:
 Display Type:

hidden

Market: KOREA

HP(Req) 2000-00-00

PL/Leader 김민영

Model LGKH1000

Op. Income Ach	%	M.Cost Rate	%	M.Cost Ach	%
F00	Qr7				

Over Approval 0000

Detail Schedule

Detail Issues

Current Status	Result/Issue
H/W	

Total: 25

1 2 3 4 5 6 7 8 9 10 > >> END

http://pms.lge.com:5010/jsp/RetrieveMainDevMeetingCmdByMet.taf - Microsoft Internet Explorer

Development Meeting

Division:
 Develop Site:
 Meeting Type:
 Model:
 Display Type:

Show

Detail Schedule

Production Site	Price	M.Cost	Call Performance	FO	FC	SAR
KOREA	Target \$	Target \$				
Buyer: KTF	Current \$	Current \$				
Model: LGKH1000 AI(TFK)						

20060814 ~ 20060829

Detail Issues

Current Status	Result/Issue	Follow Up/Plan	Doc
H/W			
S/W			
Mech			
Etc			

New Parts Approval

Object	Appr.
Mech	
Circuit	
Etc	

SW Bug History

Date	A	B	C
Start End			
No Data!			

Standard Buyer Approval Schedule

Standard	Plan	Change	Result
Buyer			

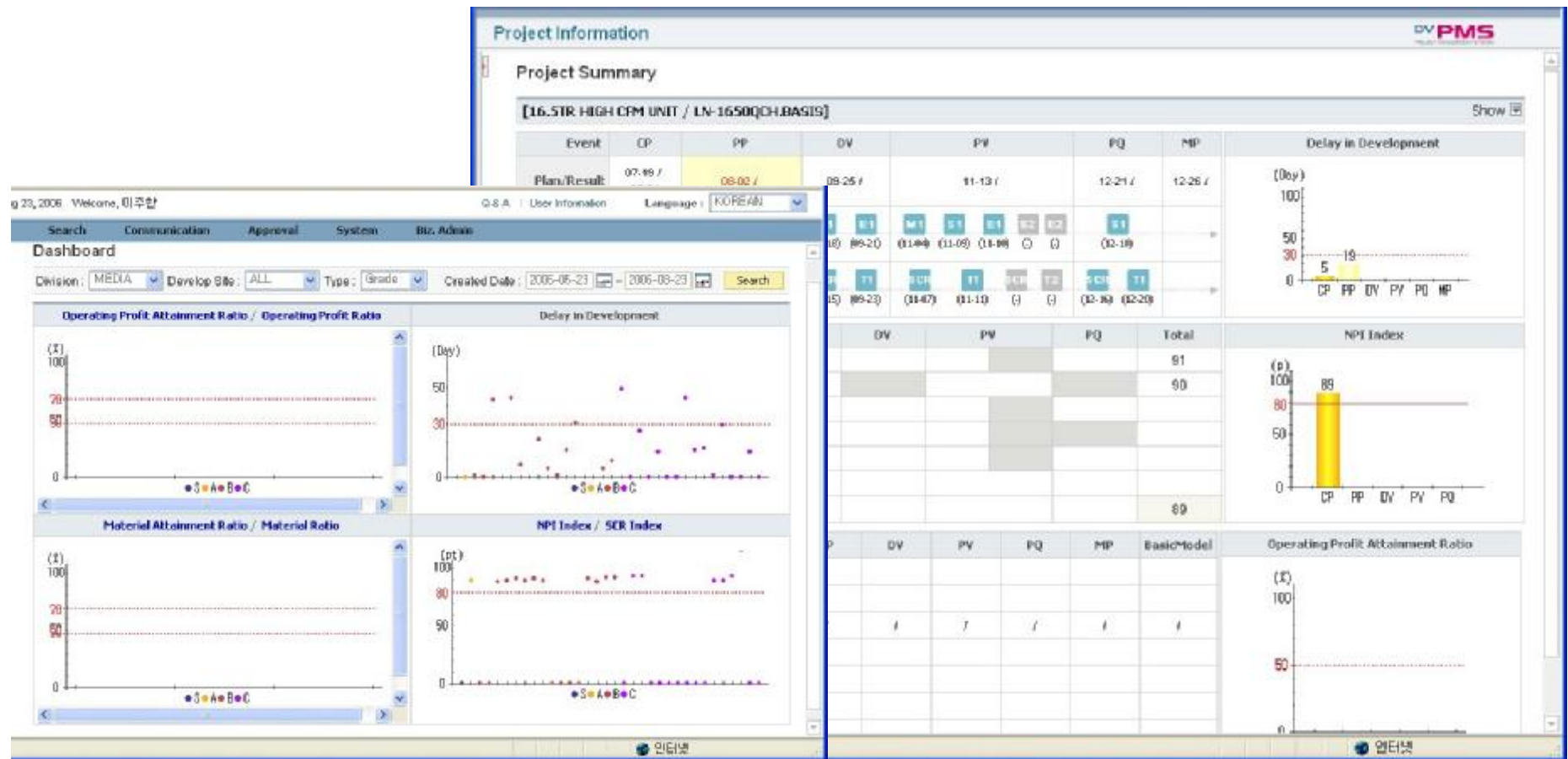
Total: 25

1 2 3 4 5 6 7 8 9 10 > >> END

25 Pages

2. Progress : 성과관리 주요화면

Dash Board 그래프, 산포도를 활용한 프로젝트 Status 및 성과화면 제공



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1. Introduction

2. Progress

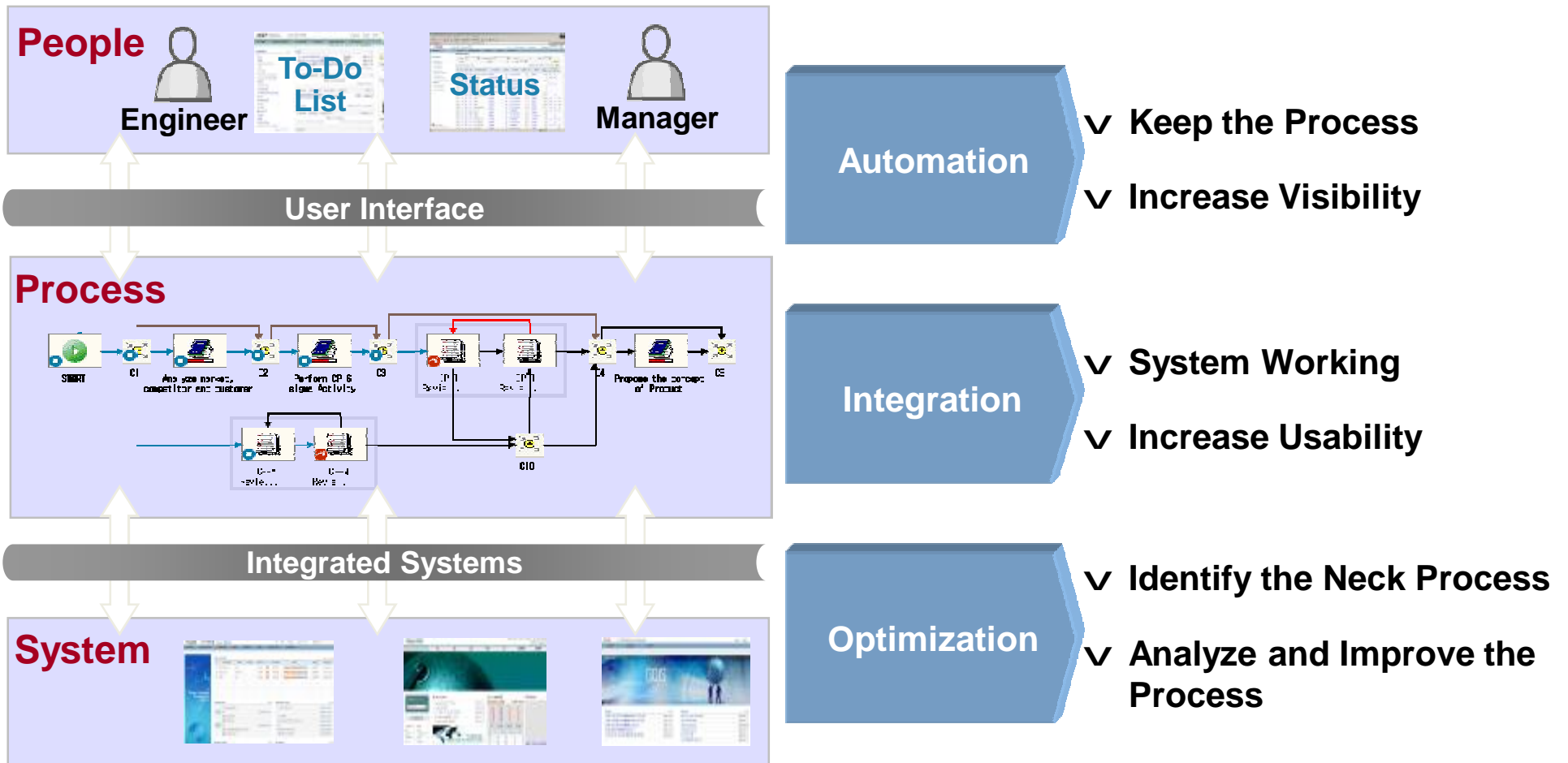
3. Best Practice

4. Value of PMS system

5. Future Plan

3. Best Practice

Enhance Visibility of Project Status through Apply BPM*



* BPM : Business Process Management

3. Best Practice

Assess Risk early through Q,C,D KPI Monitoring & Drop Review

Quality

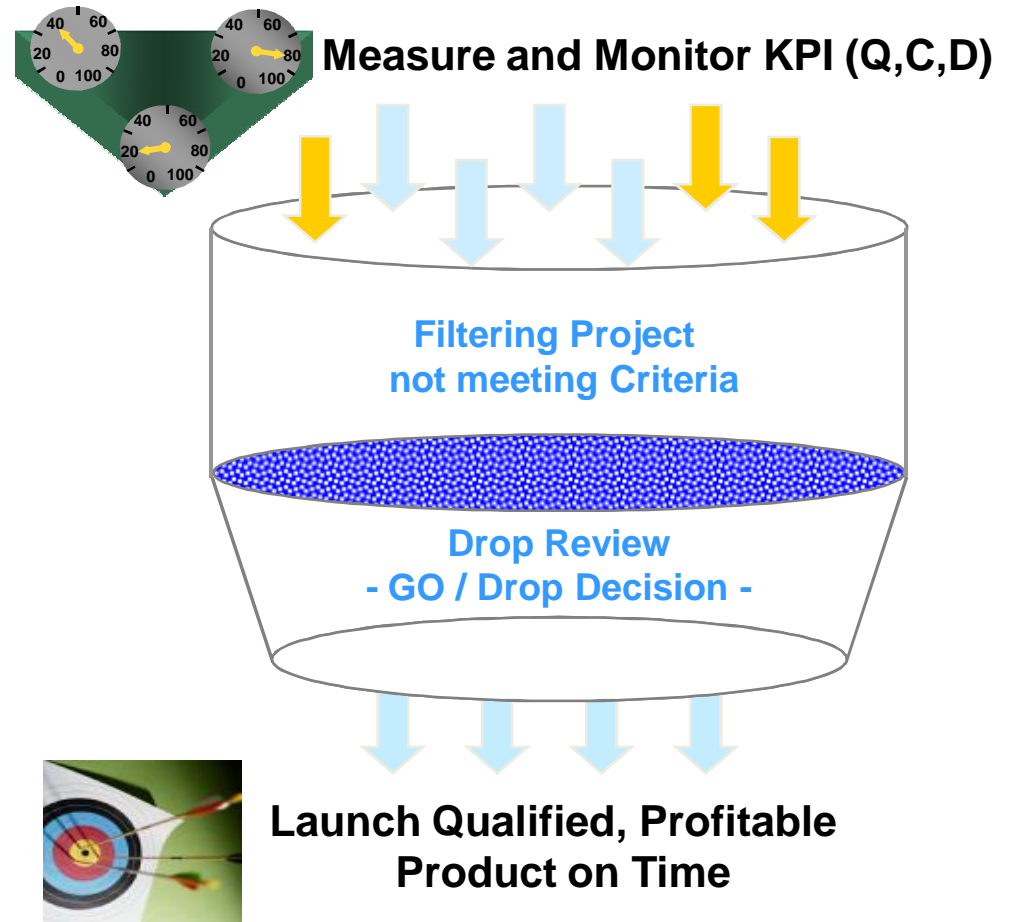
- q NPI Review Index
- q Test Index
- q SCR Review Index

Cost

- q Operation Income
- q Material Cost

Delivery

- q Delay Days



3. Best Practice

Tracking & Monitoring Performance based on Actual Data

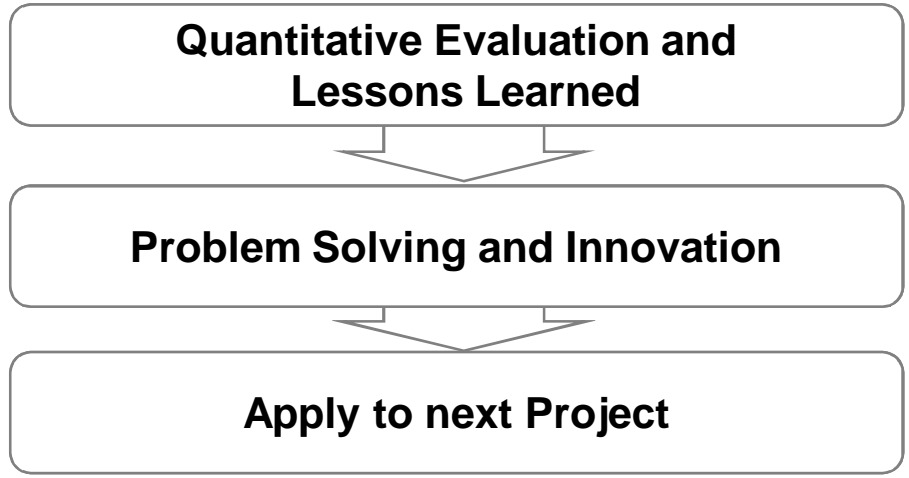
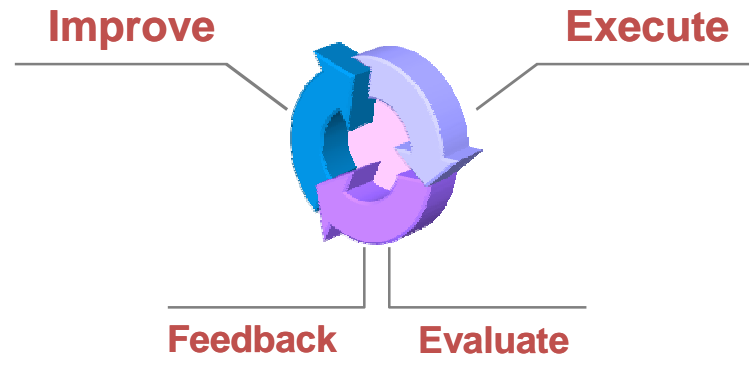
Measure Actual data after mass Production and compare with planned data

Project Close-Down

Project Summary After MP Summary Lessons Learned

KPI	Plan	Result		Forecast		Summary	
		MP	MP+3M	MP-3M	MP+12M	Reason	Improvement
Measurement	Cost	1.4	1.2				
	Quantity						
	Operating Income Rate	111					
	Cost	5	4				
	Material Cost	38.7	38.7				
	Material Cost	70.7	70.7				
	Quality	100					
	SCR		10	100	100		
	MP Date	2007-07-20					
	Completed Date	2008-07-11					
Retention	Product						
	Reaction						
	Plan						
	Brand						
Marketing	Brand						
	Promotion						

Measure at MP and MP+3(M)



3. Best Practice

Launch Product on Right Time through Statistical Analysis

✓ Calculate Statistical time per activity

$$ST = \frac{\sum \text{Actual Duration Time}}{n \sum \text{Project No.}}$$

* Excluded above 10% & below 10%

Update Project

Skip	Activity	Owner	ST	Plan Start	Planned	Duration	Status	Desc
	CP 낭비		47			11	P	
	시공,竣業,시공차 조사	김영환	35			0	E	
	CP-3D 상형	김영환	20			0	E	
	상형화 검토 리덕	김영환	18			0	E	
	상형화 검토	김영환	6			0	E	
	CP 시공전 계획		71			0	E	
	CP가전 제품리덕	김영환	10			0	E	
	전도형 제품리덕	김영환	11			0	E	
	그레 수형승 평가	김영환	15			0	E	
	3D CP-3D 상형화	김영환	3			0	E	
	CP가전 3D Data 상형	김영환	4			0	E	

Statistical
Duration Time

q Reduce Development lead time
§ Identify Bottleneck Activity

q Use to measure Project Team and Member Performance
§ Compare Duration Time of the Same Activity

q Guide the average duration time at time scheduling

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2. Progress

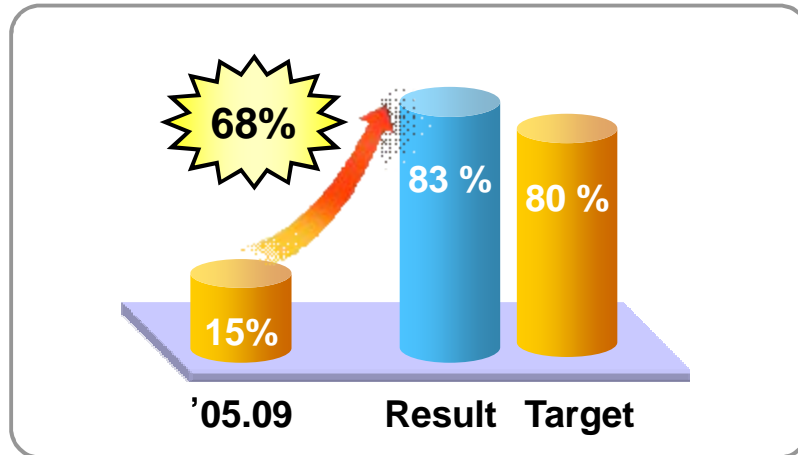
3. Best Practice

4. Value of PMS system

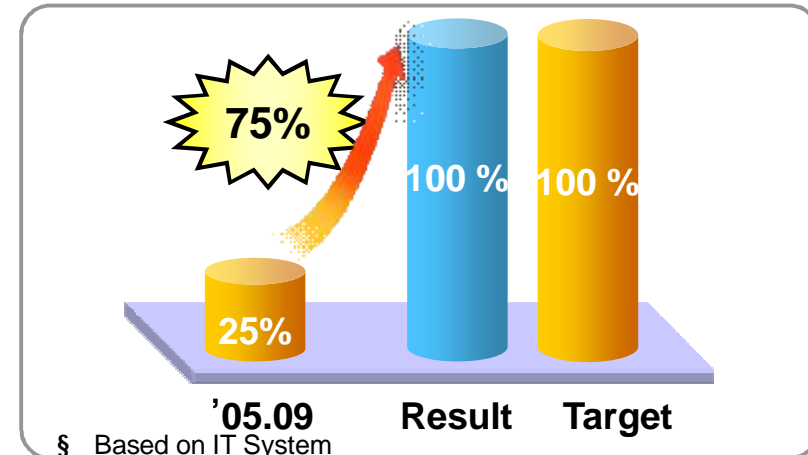
5. Future Plan

4. Value of PMS system : Achievement

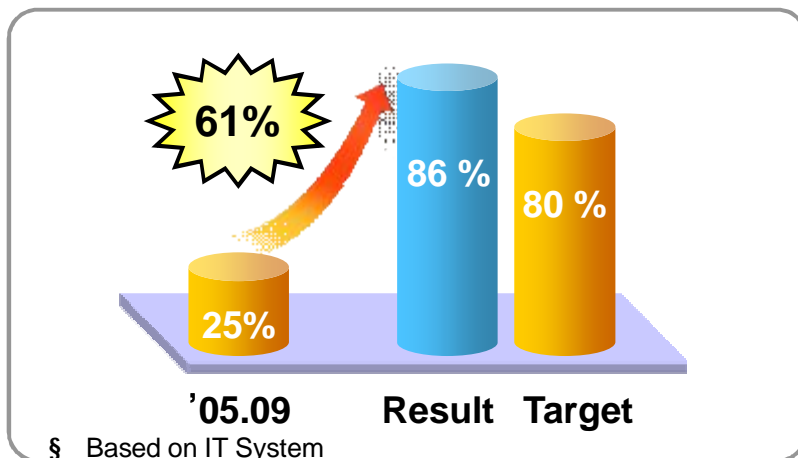
Process Standardization Rate



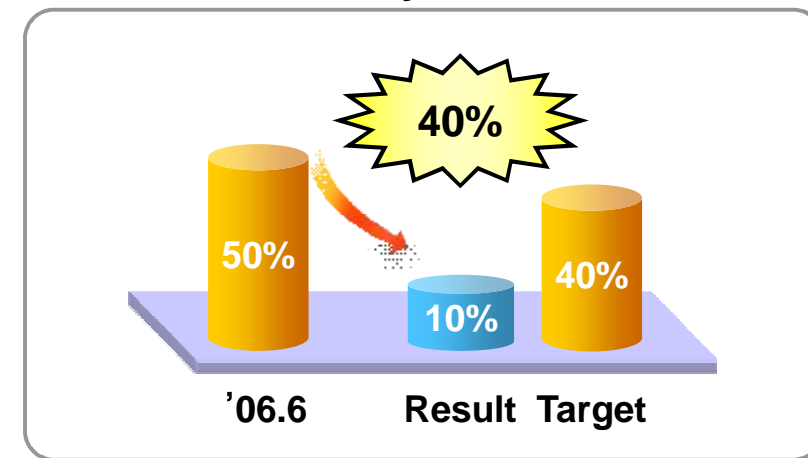
Rate of applying NPI / SCR Review



Rate of Risk Assessment



Delay Rate

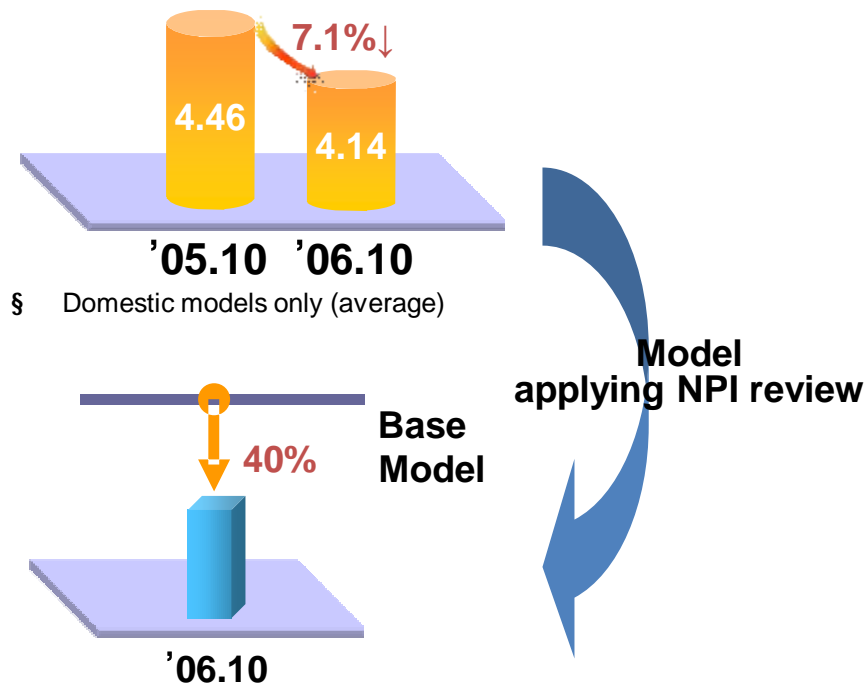


4. Value of PMS system : Contribution

Quantitative Benefits

Product Qualification

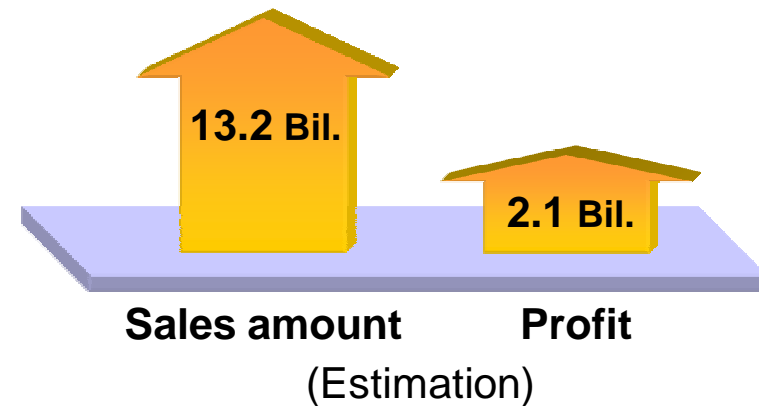
✓ Contribute to Reduce SCR



* Source : '06.11 Quality Melt-in Report

Raise Sales amount & Profit

✓ Contribution to Sales amount & Profit à Time to Market : Reduce Opportunity Loss



- § Sales loss due to launch delay : 207.6 mil. (per project)
- § Profit loss due to launch delay : 33.6 mil. (per project)

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5. Future Plan

