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Developing your Information Systems for Growth

Growing Gloucestershire Conference
The Park Campus
University of Gloucestershire
June, 2007

Dr Martin Wynn
The Business School
University of Gloucestershire

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Presentation structure

- 1. Background: relevant models and research questions
- 2. Research findings
- 3. A process for IS strategy development and implementation
- 4. Checklist for IS strategy development

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1. Background: relevant models and research questions

Overview

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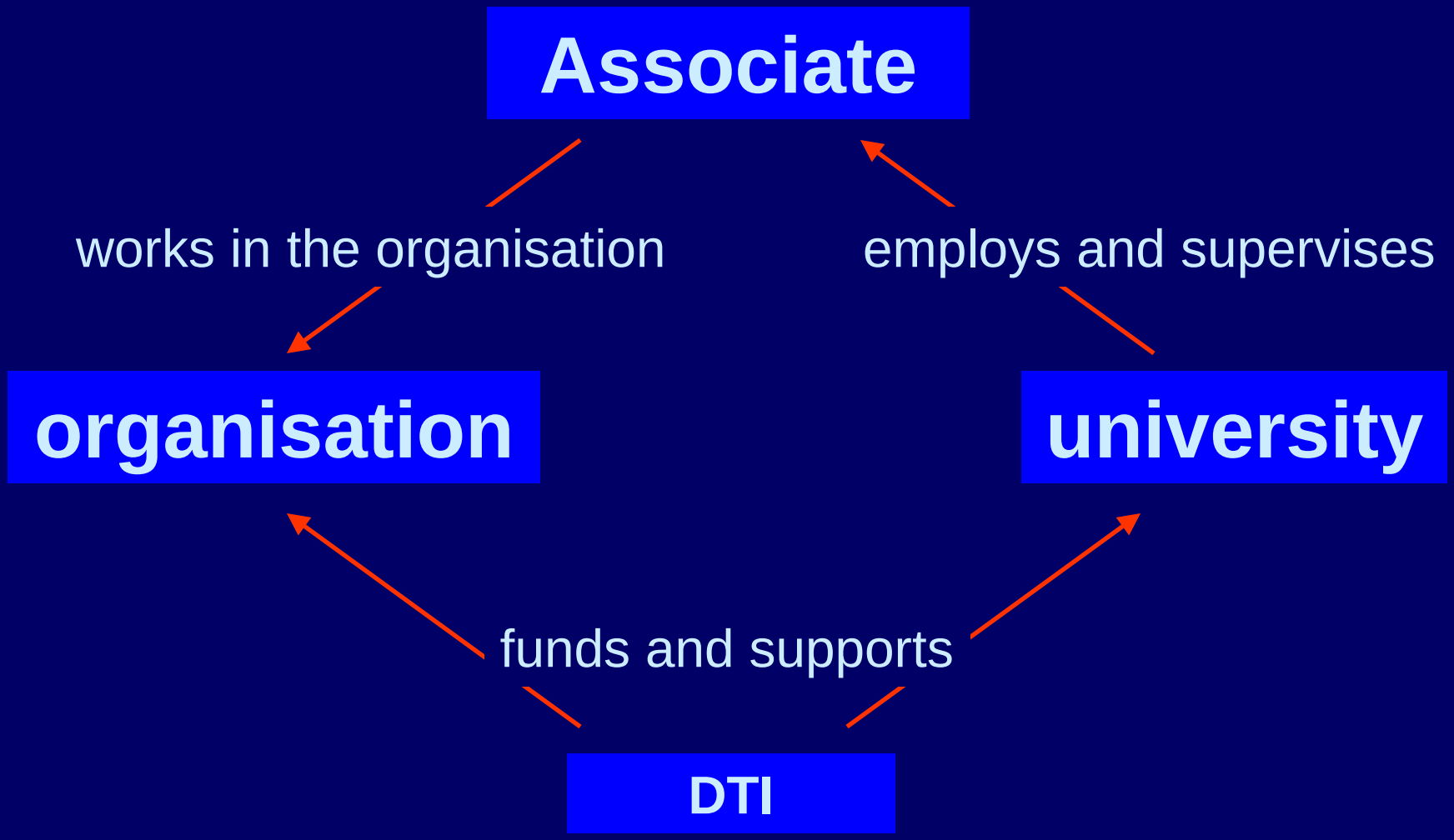
- 2003-2007, 8 companies developed and implemented new IS strategies
- These projects were implemented through the Knowledge Transfer Partnership (KTP) scheme, which funds project managers from the University to lead major change projects.
- Companies were growing – business plan targets typically aimed to double turnover and profits over 5 year horizon.
- Upgrading or replacing information systems was seen as key to sustained growth.
- Turnover at start of projects varied from £1.4m to £27m; current staff levels vary from 28 to 270

The Knowledge Transfer Partnership (KTP) scheme



IS Strategy Formulation

(after Earl)

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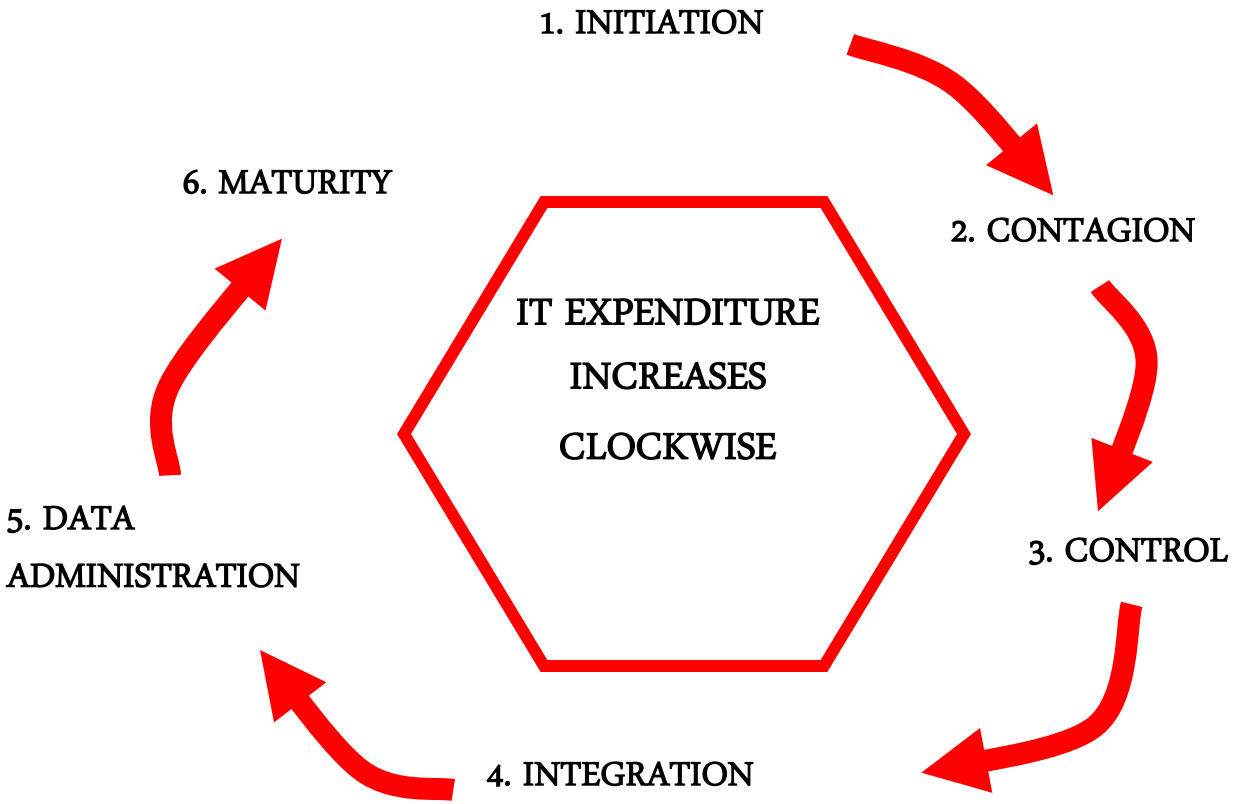
Top Down	*Bottom up*	*Inside Out*
Business Plans & Goals	**Current Systems**	**IT/IS Opportunities**
Analytical	***Evaluative***	***Creative***
Deduction of IS needs by methodology. Identification of CSFs	**Surveys & Audits of current investments in IT/IS to see if they can be improved.**	**Identify Opportunities offered by new IT/IS capabilities**

STRATEGIC PLAN OF INFORMATION SYSTEMS APPLICATIONS

Nolan's 6 stage model of the growth of the IS/IT function over time



Source Nolan, 1979

RESEARCH QUESTIONS

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- How has IS strategy been developed and how does this relate to Earl's model?
- What were the main software packages selected and are there any obvious similarities?
- Where do the case studies fit in terms of Nolan's model?
- What do the cases tell us regarding IS strategy development and implementation?

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2. Research findings

Typical Systems Status in SMEs

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- Some packages/point solutions installed in past 5 years:
  - Sales order processing, invoicing, ledgers (eg Sage)
  - CRM (eg Goldmine)
- Poor integration, with several versions of customer and product data.
- Lack of a clear database strategy – a mix of old databases (Foxpro, Btrieve, Access 97) and more modern (SQL)
- Some end-user databases and spreadsheets
- Management information difficult to extract; data inconsistencies

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IS Strategy: 3 Main Solutions

3 Integrated Enterprise Resource Planning (ERP) package from one vendor

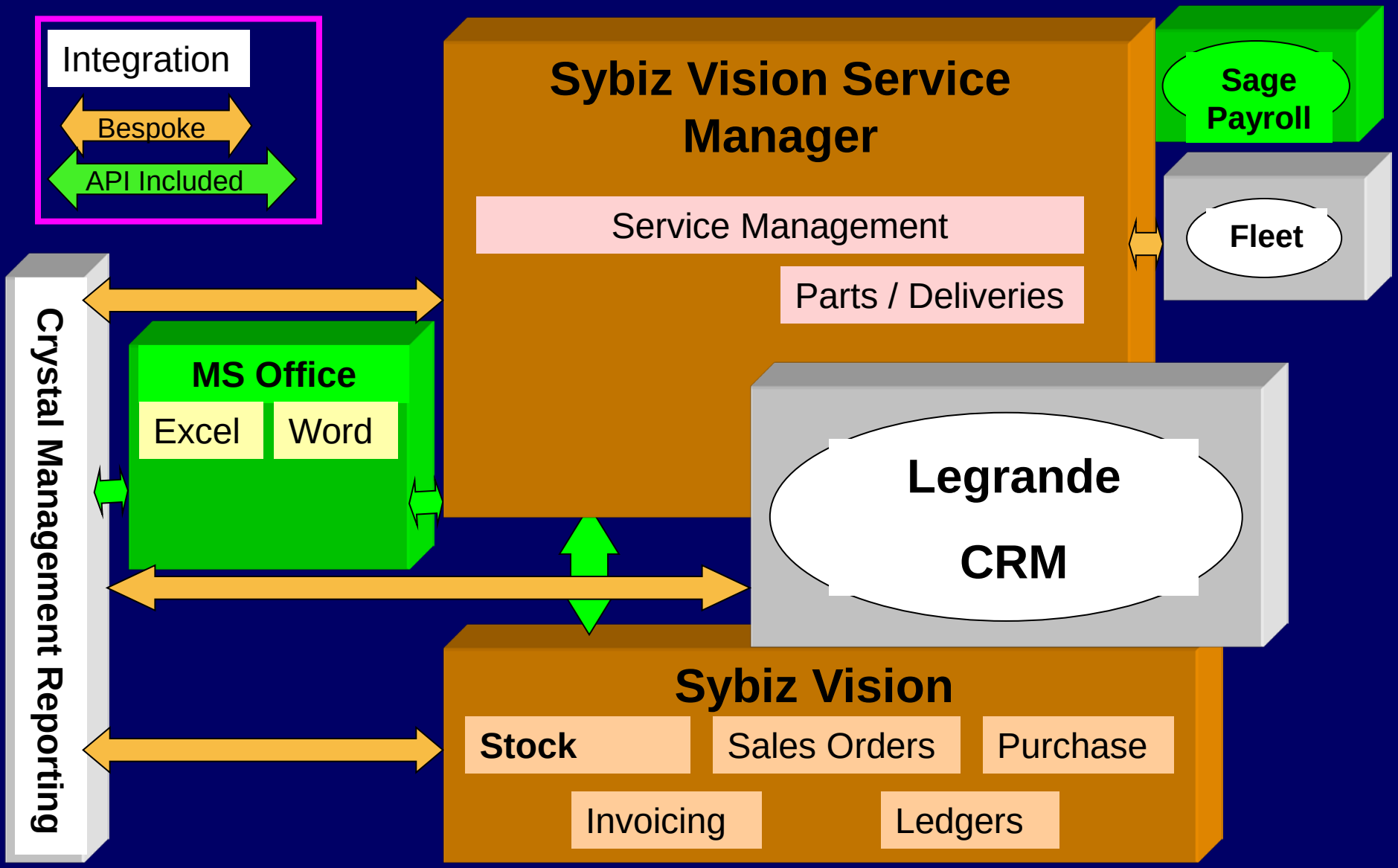
4 New Point Solutions (especially CRM) plus upgrade of existing packages

1 Integration and improved reporting from current systems

INFORMATION SYSTEMS IMPLEMENTED

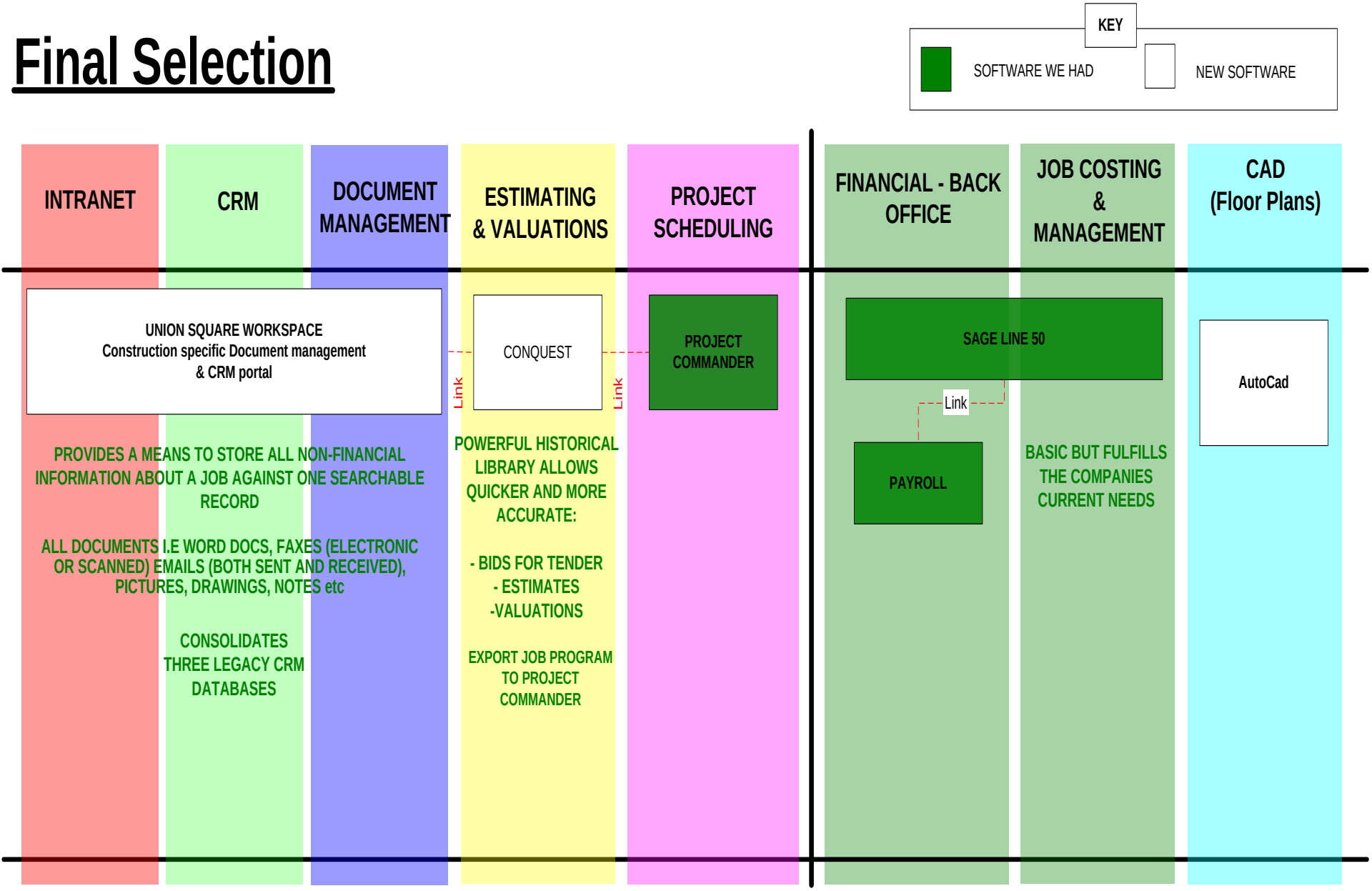
Company Sector	Staff	IS Strategy type	Systems/Software
Aerospace	180	Top down	Syteline ERP from Infor
Pharmaceuticals	270	Top down	EFACS ERP from Excel
Roof Manufacture	55	Top down	EFACS ERP from Excel
Construction	75	Top down/Inside out	Union Square CRM+Conquest Estimating+ Sage upgrade
Equipment Assembly & Sale	45	Bottom-up/Inside out	Vehicle Tracking system (Tracker) +Sybiz Vision Financials/Service upgrade + new CRM (Legrand)
Construction	40	Top down/Inside out	InfoView CRM + VPN + wireless technologies
Training Services	28	Top down/Bottom-up	Course Booker CRM + webportal + Sage Financials upgrade
Office Systems Design & Installation	48	Bottom-up	Upgrade Goldmine CRM and Sage Financials + Bespoke Reports & Interfaces in VBA + Improve data.

Equipment Company: 2 New Point Solutions + Upgrades + Enhanced Reporting

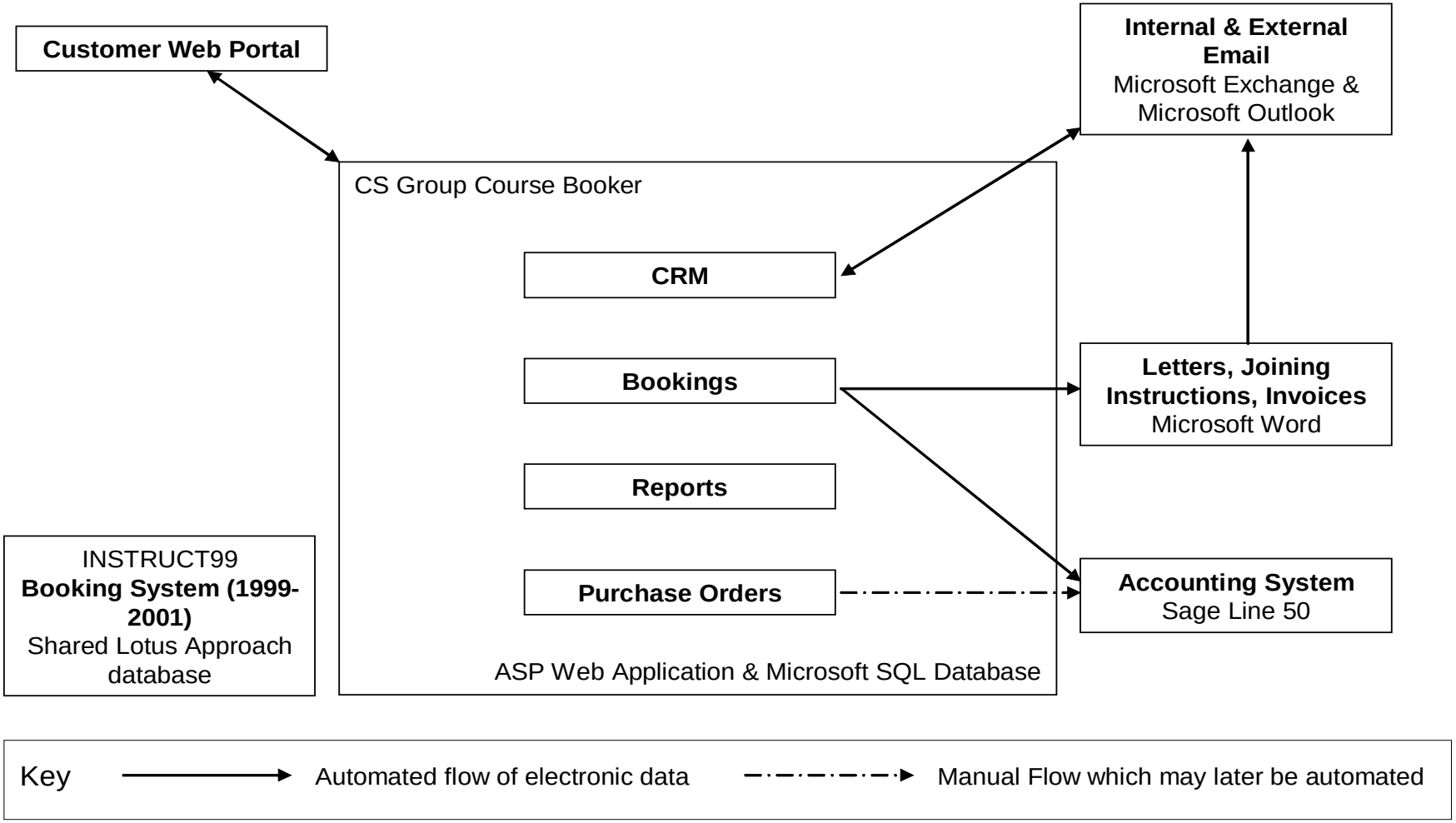


Construction Co: 3 New Point Solutions + Upgrades

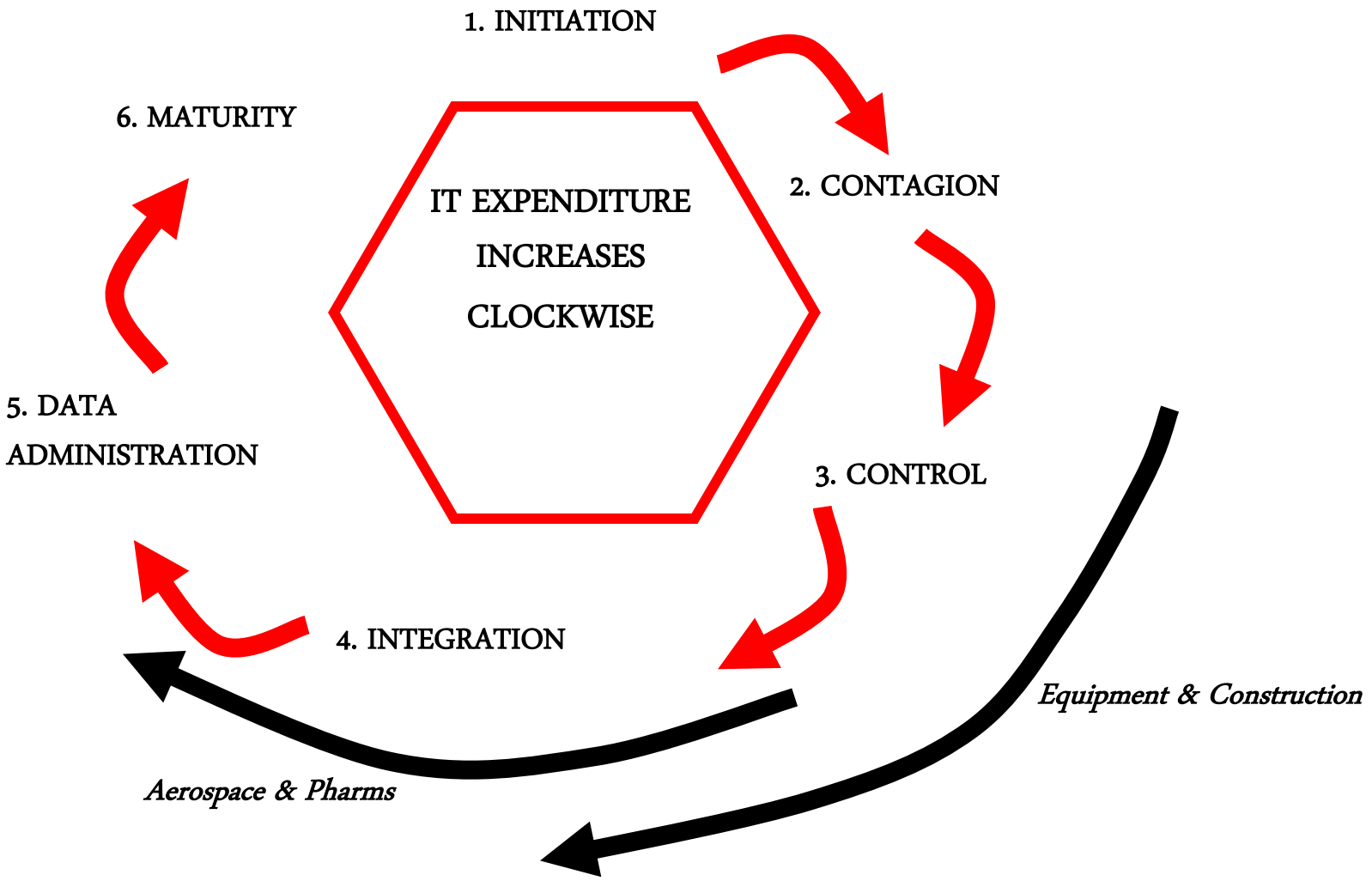
Final Selection



System Diagram – New



Progress on Nolan's 6 stage model



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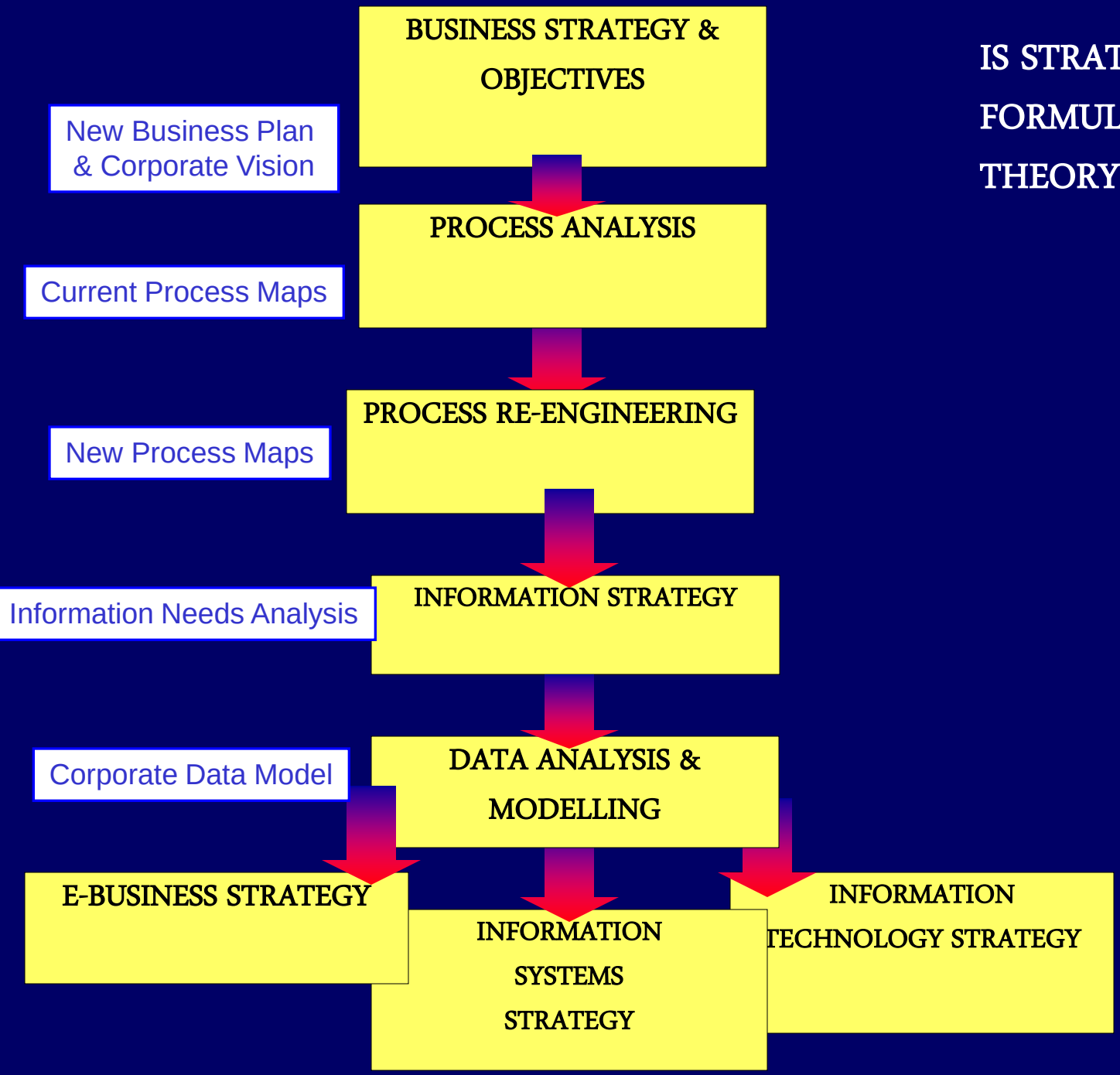
3. A process for IS strategy development and implementation

IS STRATEGY FORMULATION - THEORY



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- To do all this can take years
- Apply common sense – a lot is already in place
- Flexible application of tools and methods

IS STRATEGY DEVELOPMENT & IMPLEMENTATION PROCESS

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1	UNDERSTAND BUSINESS PLAN & IDENTIFY MAIN BUSINESS PROCESSES
2	MAP CURRENT INFORMATION SYSTEMS & ALLOCATE SYSTEMS TO PROCESS AREAS
3	UNDERTAKE RED-AMBER-GREEN (RAG) ANALYSIS FOR CURRENT SYSTEMS
4	IDENTIFY KEY DATA ISSUES – CUSTOMER, PRODUCT (data quality, multiple maintenance)
5	IDENTIFY SOFTWARE PACKAGE OPTIONS
6	DEVELOP A BUSINESS CASE FOR EACH OPTION & PRESENT TO BOARD
7	DRAW UP & EXECUTE PHASED IMPLEMENTATION PLAN EMPLOYING COMMON SENSE PROJECT MANAGEMENT

INFORMATION SYSTEMS IMPLEMENTED

Company Sector	Staff	Turnover Increase (£m)	Annual Profit Increase from IS (£K)
		27 → 40	
Aerospace	180	5.6 → 10.7	90
Pharmaceuticals	270	6.8 → 7.4	720
Roof Manufacture	55		66*
		4.8 → 6.5	
Construction	75		74
		2.9 → 3.8	
Equipment Assembly & Sale	45		134*
Construction		12.2 → 31.7	
	40		950
Training Services		1.4 → 2.0	
	28		200*
Office Systems Design & Installation		6.9 → 11.0	
	48		800

* Forecasts tbc

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Step 1. Understand the corporate Business Plan and identify business processes

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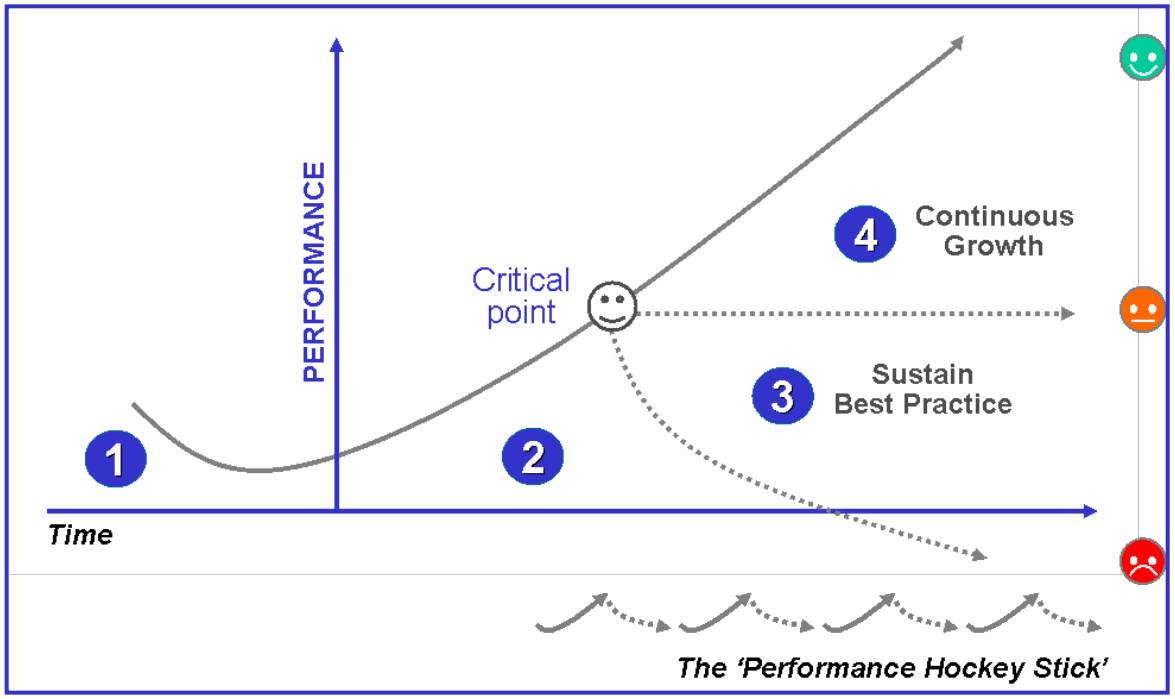
Typical Business Performance in 5 Year Plan



Double Turnover and Profit over a 5 year period

Main Business Processes

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Sales Order Processing

Supply Chain Planning

Manufacturing & Operations

Purchasing

HR Management

Financial Management

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Step 2. Map current information systems and allocate them to business processes

What systems are used?

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Sales Force Contact Management System

Sales Forecasting System (Excel)

Telesales Telemarketing System (Access)

Warehouse Stock Control

Despatch & Delivery Tracking

Invoicing System (Sage)

Order Entry System

MPS MRP

Bill of Materials Explosion (Excel)

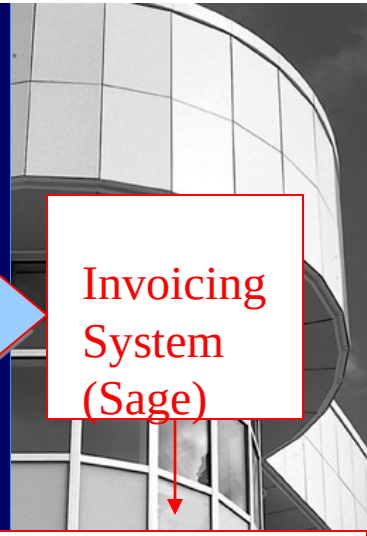
Sales Ledger (Sage)

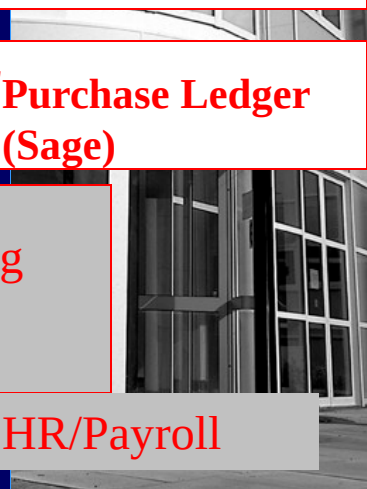
Purchase Ledger (Sage)

Raw Materials Inventory (DBase4)

Purchasing System

HR/Payroll





INFORMATION SYSTEMS PORTFOLIO
White – package
Grey – bespoke/in-house
Black - manual

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Sales Order Processing

Telesales/ Telemarketing

Customer Contact Management

Order Entry

Supply Chain Planning

Master Production Scheduling

Warehouse Stock Control

Materials Requirements Planning

Manufacturing & Operations

Despatch & Delivery

Purchasing

Stores Inventory Control

Purchasing

HR/Payroll

HR Management

Financial Management

Invoicing

Ledgers

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Step 3. Undertake Red-Amber-Green (RAG) analysis of current systems

Green – Technically and strategically sound
Amber – Possibly replace
Red – In need of replacement

INFORMATION SYSTEMS STRATEGY DEVELOPMENT: INTERVIEW SENIOR MANAGERS

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BUSINESS OBJECTIVE	CSF	INFORMATION REQUIREMENT	SYSTEMS IMPLICATION

1. STRUCTURED INTERVIEWS → 2. ANALYSE, PRIORITISE, FEEDBACK → 3. INFORMATION SYSTEMS PLAN

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Sales Order Processing

Telesales/ Telemarketing

Customer Contact Management

Order Entry

Supply Chain Planning

Master Production Scheduling

Warehouse Stock Control

Materials Requirements Planning

Manufacturing & Operations

Despatch & Delivery

Purchasing

Stores Inventory Control

Purchasing

HR/Payroll

HR Management

Financial Management

Invoicing

Ledgers

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Step 4. Identify key data issues

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Sales Order Processing

Telesales/ Telemarketing — C — Customer Contact Management

P — Order Entry — C

Supply Chain Planning

C — Warehouse Stock Control

P — Master Production Scheduling

Manufacturing & Operations

P — Materials Requirements Planning

C — Despatch & Delivery

P — Stores Inventory Control

Purchasing

Purchasing — P

HR/Payroll

HR Management

Invoicing — P

C — Ledgers

Financial Management

C = customer data maintenance

P = product data maintenance

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Step 5. Draw up options for systems replacement

Options include:

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Implement a new ERP system (major change in line with business vision)

SELECTIVE SYSTEMS REPLACEMENT and UPGRADES (Point solutions)

MINOR AMENDMENTS (make the best of what you have)

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Step 6. Develop business cases for different options

Step 7. Implement the selected option - and be aware of possible problems:

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- BUDGET LIMITATIONS
- IT SKILLS SHORTAGE
- DEALING WITH LEGACY SYSTEMS
- SUPPLERS FAILING TO MEET DEADLINES
- IMPLEMENTING ORGANISATIONAL CHANGE
- USERS CHANGING THEIR MINDS
- INVOLVEMENT OF SENIOR MANAGERS
- LACK OF INTEGRATION WITH BUSINESS STRATEGY

Source: National Computing Centre Survey of IT Decision-Makers 2001

Maximise User Involvement in IS Delivery

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- Steering Group/Working Party representation
- Project Manager/User Manager
- User ownership of systems modules
- Process ownership
- Systems Testing
- System Training
- System Administration
- Manuals and Support Materials
- Newsletters and Communication materials (eg Intranet, E-mails)

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4. Checklist for IS strategy development

IS Strategy Development

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- Get IT/IS referred to in the company Business Strategy or Business Plan (and get Board representation if possible)
- Work with the senior management team to identify information requirements
- Take a holistic, all inclusive approach to strategy development
- Maximise user involvement, sponsorship and ownership

IS Strategy Checklist

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- Know and understand the new technologies & incorporate them into your strategy as appropriate (pilot and trial them)
- Don't take risks with technology choices
- Document your strategy and update it annually (or more regularly if appropriate)
- Know your senior management and understand their perspectives