IS6640
IS Planning and Strategy

Lecture 7 - IS Strategy and Planning

Reference –
Original: John Ward & Pat Griffiths, Strategic Planning for Information Systems, 1996, John Wiley & Sons.
Updates: Joe Peppard and John Ward, The Strategic Management of Information Systems: Building a Digital Strategy, 2016, John Wiley & Sons.

Courtesy: Prof Bernard Tan

3. IS Planning Issues

- Definition of IS strategy
- Barriers in IS planning
- Success factors for IS planning
- Stimuli driving IS planning
- Overview of IS planning
- Inputs to IS planning
- Process of IS planning
- Outputs from IS planning
- Resources for IS planning

Definition of IS Strategy

- Definition of IS planning
  - The process of deciding the objectives for organizational computing and identifying potential computer applications which the organization should implement
- Definition of IS strategy
  - It brings together the business aims of an organization, an understanding of the information needed to support those aims, and the implementation of computer systems to provide that information

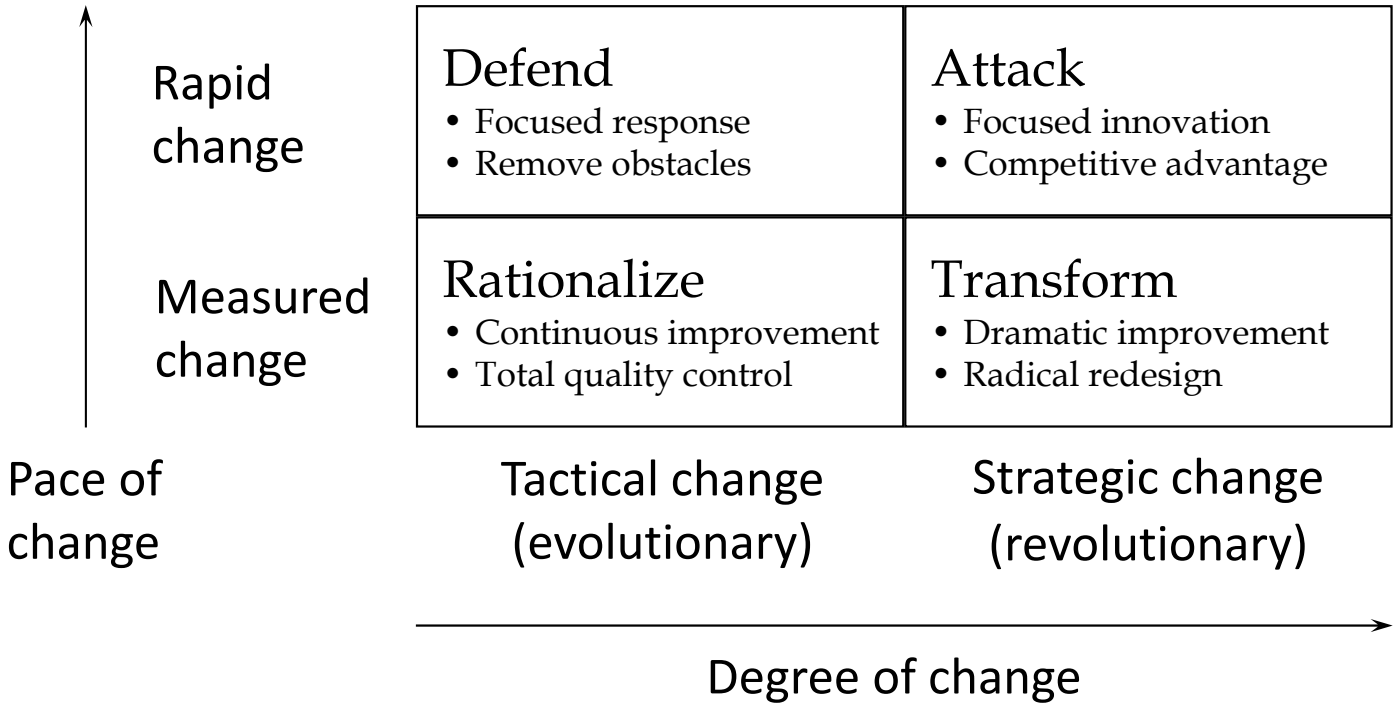
Barriers in IS Planning

- Problems due to senior management (Lederer and Mendelow, 1988)
  - Lack of awareness of potential strategic impact of IS
  - IS benefits claimed by technical people not considered credible
  - Information not viewed as a long-term business resource
  - Demand financial justification for IS investments
  - Short-term rather than long-term orientation
- Problems due to IS planning process (Earl, 1993)
  - Constraints on resources
  - Strategy not fully implemented
  - Lack of top management support
  - Too much time involved
  - Poor relationships between users and IS people

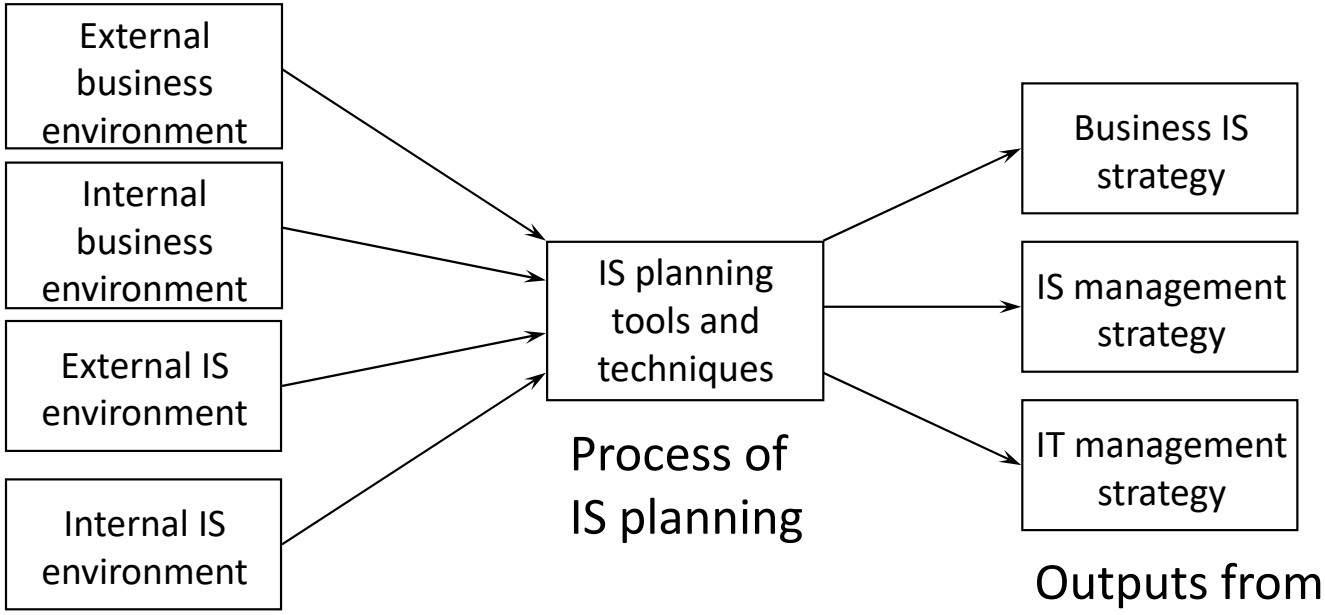
Success Factors for IS Planning

- Outcome of IS planning depends on
  - the starting point (orientation of current portfolio of IS applications and strength of technology infrastructure)
  - the opportunities available (potential for some early winners and opportunity to acquire or build a good future portfolio of future IS applications)
  - the degree of top management involvement
- A continuous process
  - regular updates to respond to environmental changes
- A learning process
  - towards higher levels of maturity
- Planning for IS planning
  - define purpose, key issues, scope, methodologies, deliverables, resources, time, costs, and marketing strategy

Stimuli Driving IS Planning



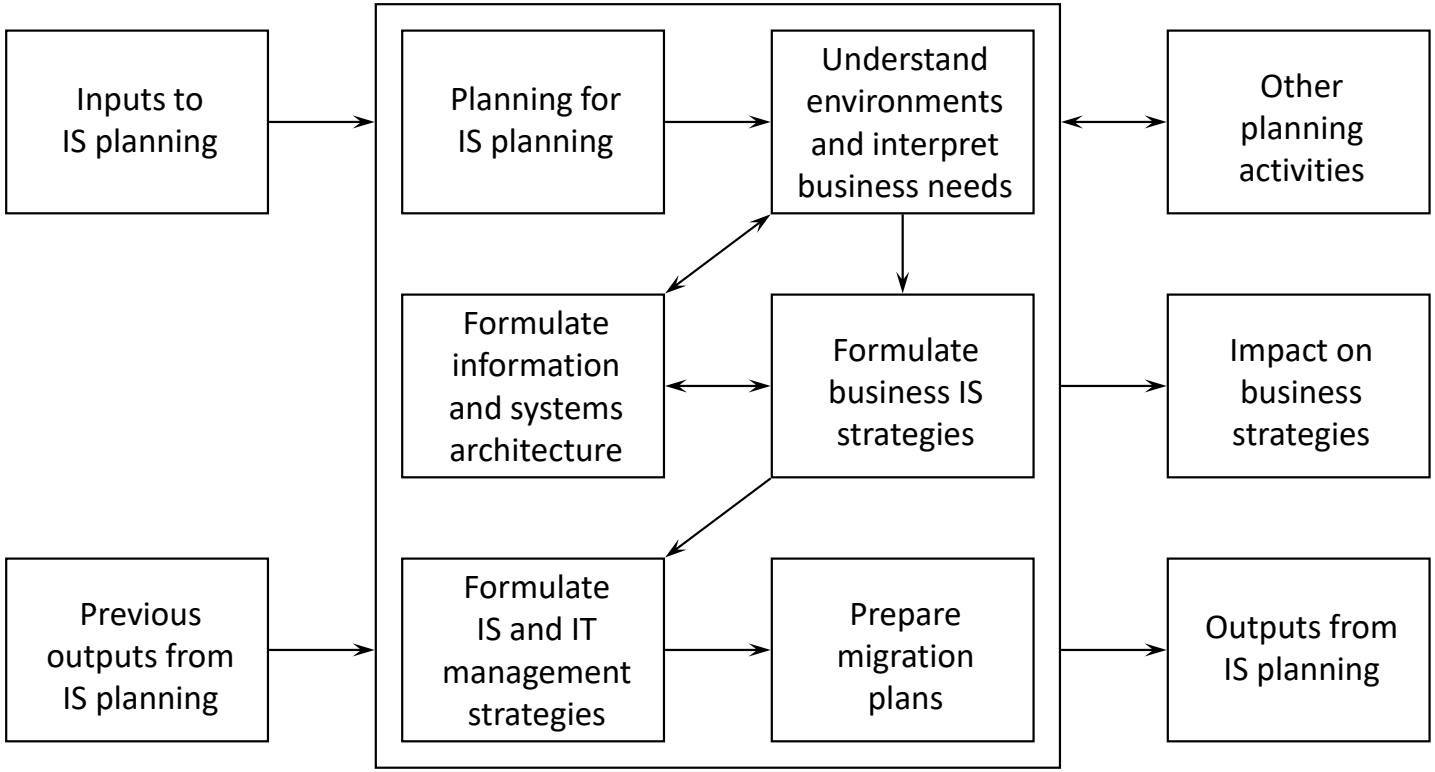
Overview of IS Planning



Inputs to IS Planning

- External business environment
  - economic, social, political, legal, and ecological climate of the business
- Internal business environment
  - current objectives, strategies, resources, processes, and culture of the business
- External IS environment
  - technological climate (opportunities and threats) of the business
- Internal IS environment
  - current IS maturity, business coverage, business contribution, skills, resources, applications portfolio, and technology infrastructure

Process of IS Planning



Outputs from IS Planning

- Business IS strategy
  - key elements of business environment
  - key elements IS environment
  - demand for IS (needs for business information)
- IS management strategy
  - ensure consistent IS policies across organization
  - IS vision and organization, vendor policies, human resource policies, and accounting policies
- IT management strategy
  - ways to manage applications portfolio and development, information resources, IS investments and prioritization, and technology infrastructure
  - supply of IS (provision of business information)

Resources for IS Planning

- Top management support (sponsor and steering committee)
- IS planning team (leader and members)
  - Knowledge of business objectives, strategies, resources, processes, and culture
  - Good communication skills
  - Authority to make decisions and implement plans
  - Respect of management and staff
  - Ability to analyze objectively
- Automated Support Facilities
- Physical Facilities

4. Determining Current IS Needs

- Internal business environment
- Constituents of a business strategy
- Internal IS environment
- IS profile in organizations
- Critical success factors analysis
- Process effectiveness analysis
- Organizational modelling
- Evaluating current IS needs

Internal Business Environment

- Business strategy
  - Purpose: To ensure that IS strategy supports rather than contradicts business strategy
  - Tools: Critical success factors analysis and business drivers analysis
- Business processes, activities, and key entities
  - Purpose: To understand important business tasks and processes, and the flow of information
  - Tools: Process effectiveness analysis, process flow diagrams, data flow diagrams, entity relationship models, and activity entity matrices
- Organizational environment
  - Purpose: To understand organizational arrangements, value system, and key people and their relationships
  - Tools: Organizational modelling

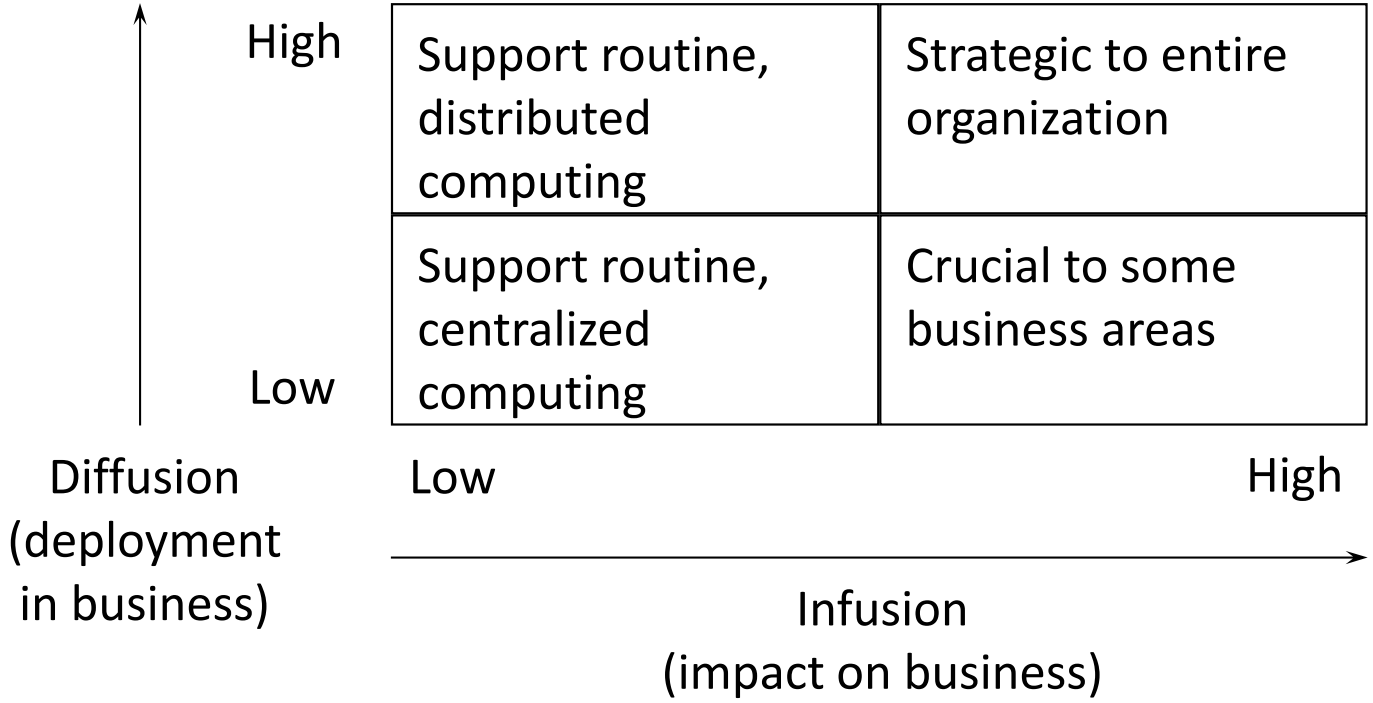
Constituents of a Business Strategy

- Mission
  - Statement of overall purpose for the organization
- Vision
  - Brief description of the future that is consistent with the mission
- Goals
  - Major achievements necessary to accomplish the vision
- Objectives
  - Measurable targets that take the organization towards the goals
- Strategies
  - Concrete ways to achieve the objectives (inputs from IS planning process)
- Critical success factors
  - Areas where things must go right for the organization to flourish

Internal IS Environment

- Current IS management strategy (applications portfolio)
  - Content and coverage of applications
  - Contribution of applications (high potential, strategic, key operational, and support)
- Value of IS to organization
  - IS profile in organization
  - IS perception in organization
- Current IT management strategy (infrastructure and resources)
  - IS organization and processes
  - IS assets, resources, and skills
  - IS methodologies and training provisions

IS Profile in Organizations



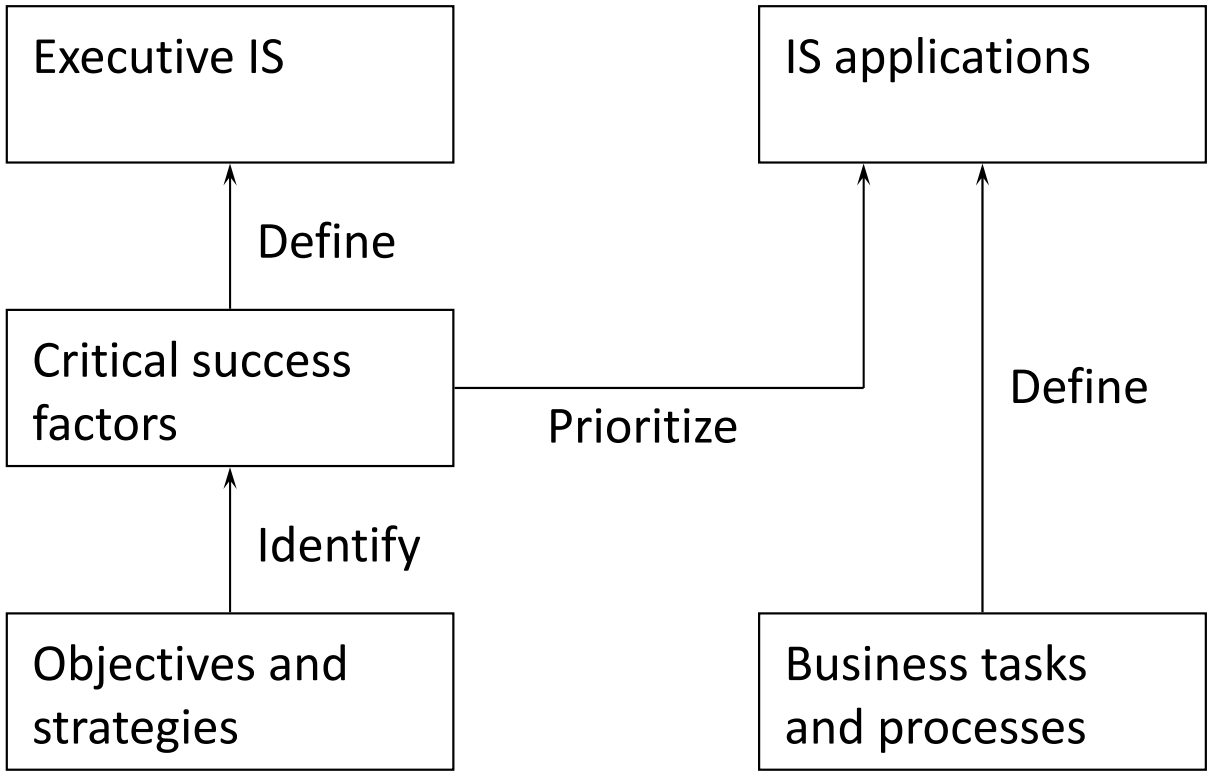
Critical Success Factors Analysis

- Hierarchy of critical success factors (industry, organizational, business unit, and manager)
- Identified from objectives and strategies
- For prioritizing and determining IS applications

Objective: To achieve 1% growth in market share

Strategy	Critical success factors	Measures to be developed
Improve sales in all sites at rates higher than industry average	Competitive pricing Salary of site managers Distribution of sites	Company prices versus industry average Manager salary versus industry average Proportion of high turnover sites
Improve sales of underperforming sites	Level of advertising	Amount spent versus industry average

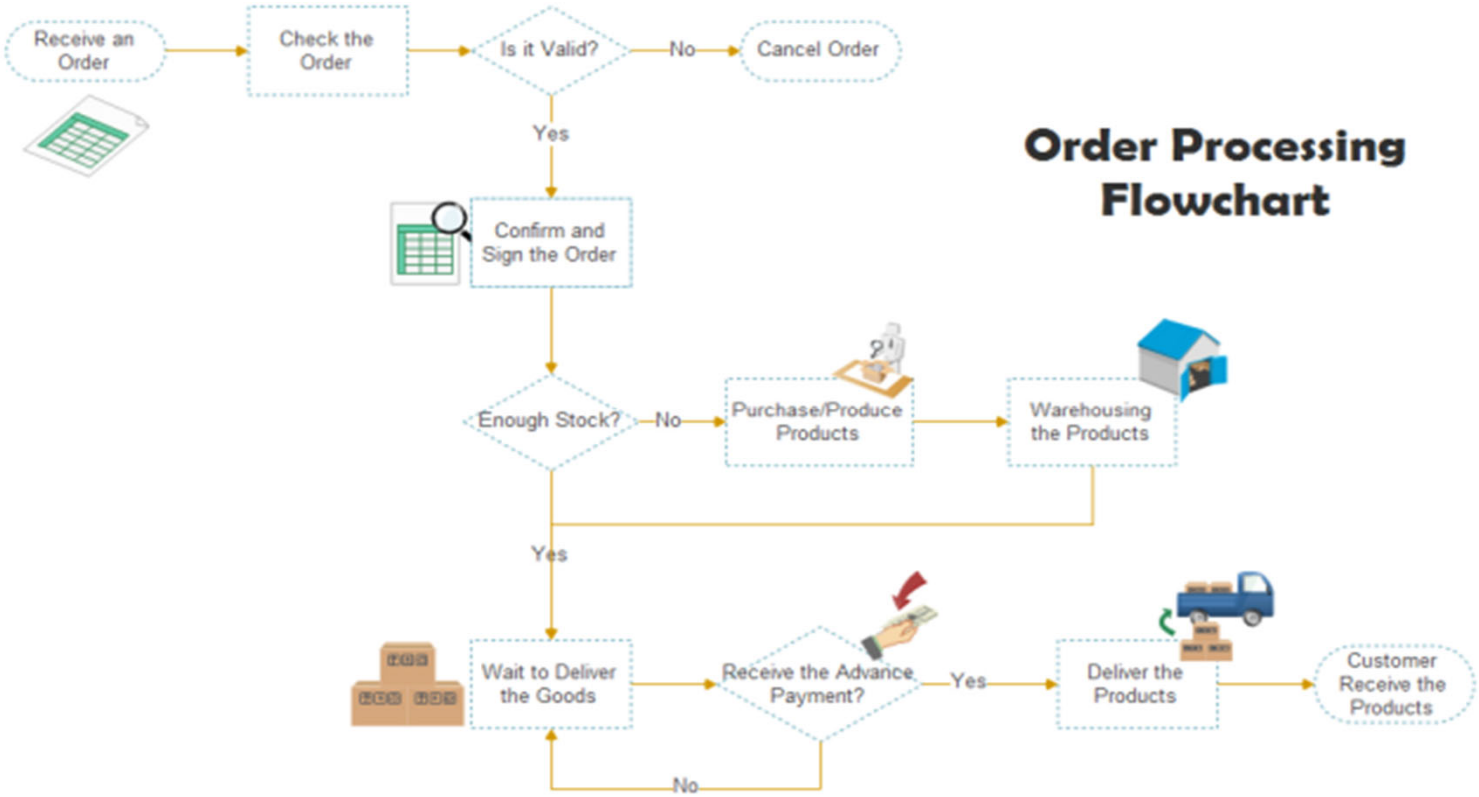
Critical Success Factors Analysis



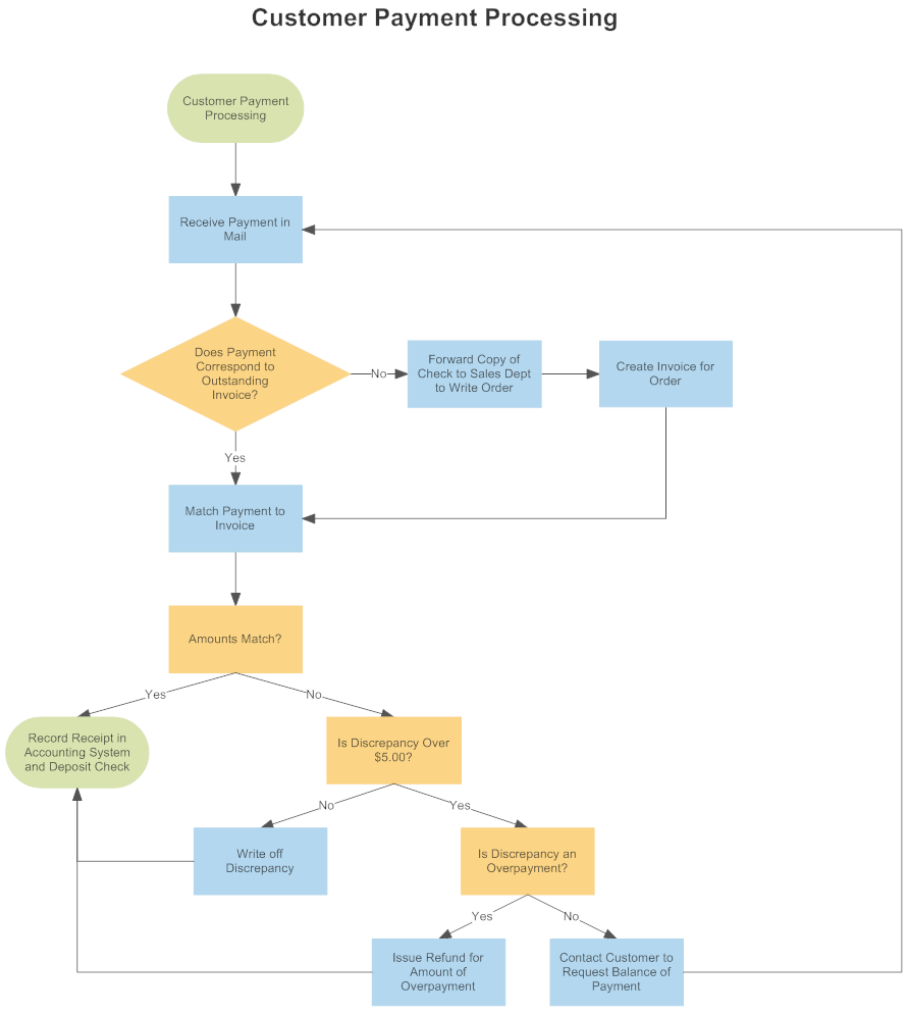
Process Effectiveness Analysis

- To gauge the ability of business processes to contribute to meeting business needs
- Assess the effectiveness of each business process against each critical business driver/capability
- A business process is a logical collection of related business tasks
- Examples of critical business drivers/capabilities
  - Production efficiency: Removal of duplication, removal of unnecessary checking, reduced transfers of responsibility, simplified procedures, and streamlined information flows
  - Customer satisfaction: Reduced time to process orders, reduced time to answer queries, and improved quality of products delivered, and improved quality of services rendered

Example of an Order Processing/Fulfillment Process



Example of a Customer Payment Process



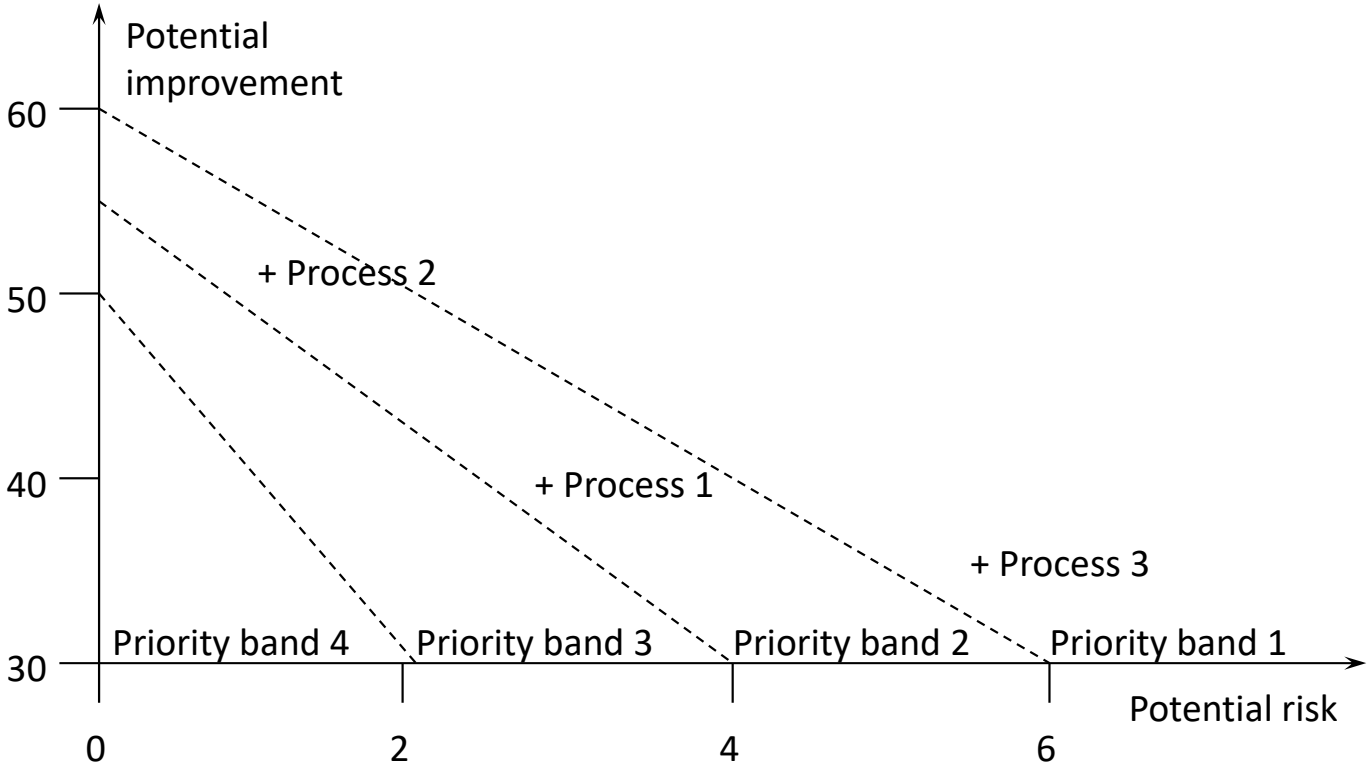
Process Effectiveness Analysis

	Driver 1 Weight 3	Driver 2 Weight 5	Driver 3 Weight 1	Driver 4 Weight 4	Total gap
Process 1	Current 0/0 Potential 4/12 Gap 12	Current 2/10 Potential 6/30 Gap 20	Current 2/2 Potential 2/2 Gap 0	Current 0/0 Potential 2/8 Gap 8	40
Process 2	Current 2/6 Potential 6/18 Gap 12	Current 2/10 Potential 4/20 Gap 10	Current 0/0 Potential 6/6 Gap 6	Current 0/0 Potential 6/24 Gap 24	52
Process 3	Current 0/0 Potential 2/6 Gap 6	Current 2/10 Potential 6/30 Gap 20	Current 4/4 Potential 6/6 Gap 2	Current 2/8 Potential 4/16 Gap 8	36

Contribution: 0 = nothing; 2 = minor; 4 = moderate; 6 = major

Risk factors: 0 = nothing; 2 = minor; 4 = major; 6 = critical

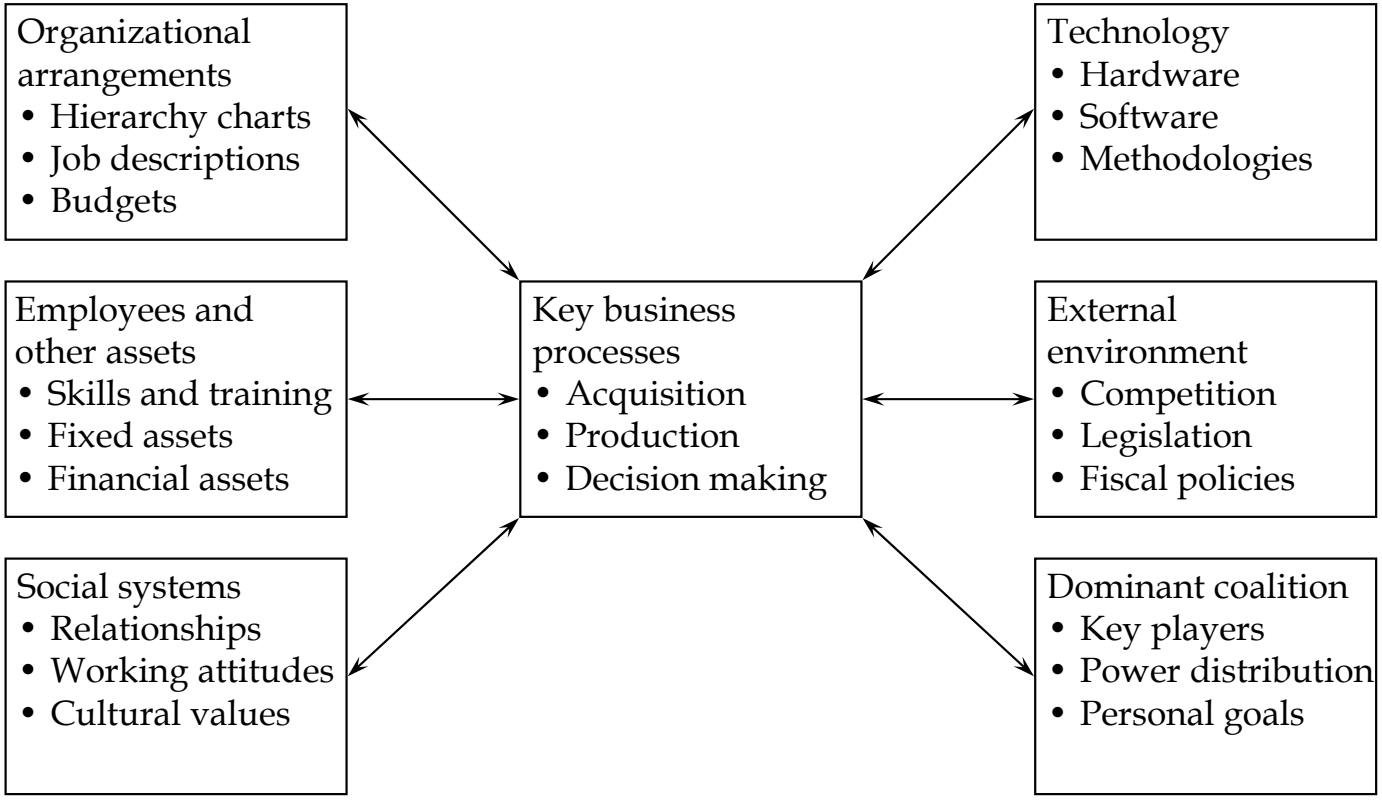
Process Effectiveness Analysis



Organizational Modelling

- Structured technique to ensure comprehensive examination of business and IS environments
- Documents environmental factors underlying each key business process
- Assesses the implications of changing each key business process
- Aid to decision making and communication
- Especially useful during business re-engineering exercises

Organizational Modelling



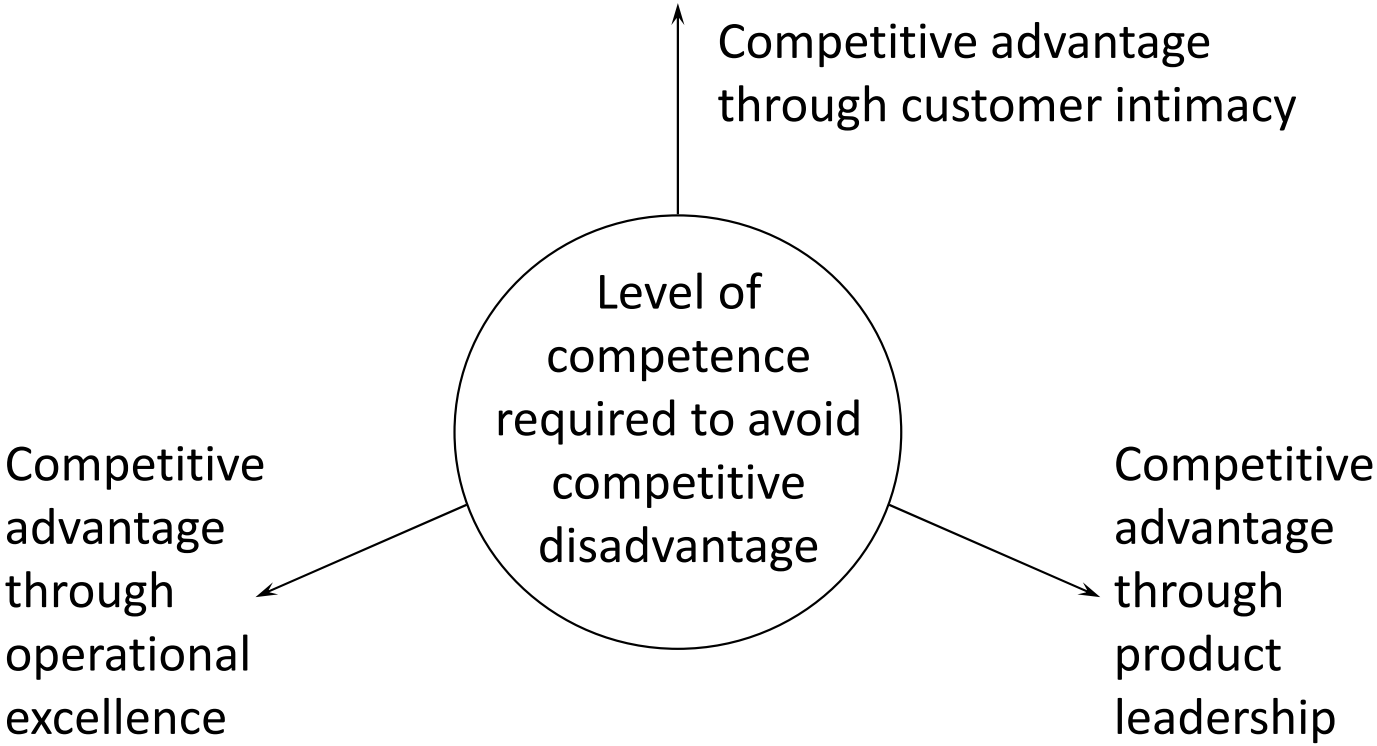
Evaluating Current IS Needs

- Identify business processes in need of recognition, simplification, streamlining, or redesign
- Identify new or upgraded information provisions
  - new uses of existing sources of information
  - new sources of information
- Identify changes in the IT management strategy (supply provisions) to support the new role of IS in the organization

5. Determining Future IS Potential

- Dimensions of competence
- Value chain analysis
- Value system analysis
- Strategic options generator
- Resource life cycle analysis
- Comparison of techniques

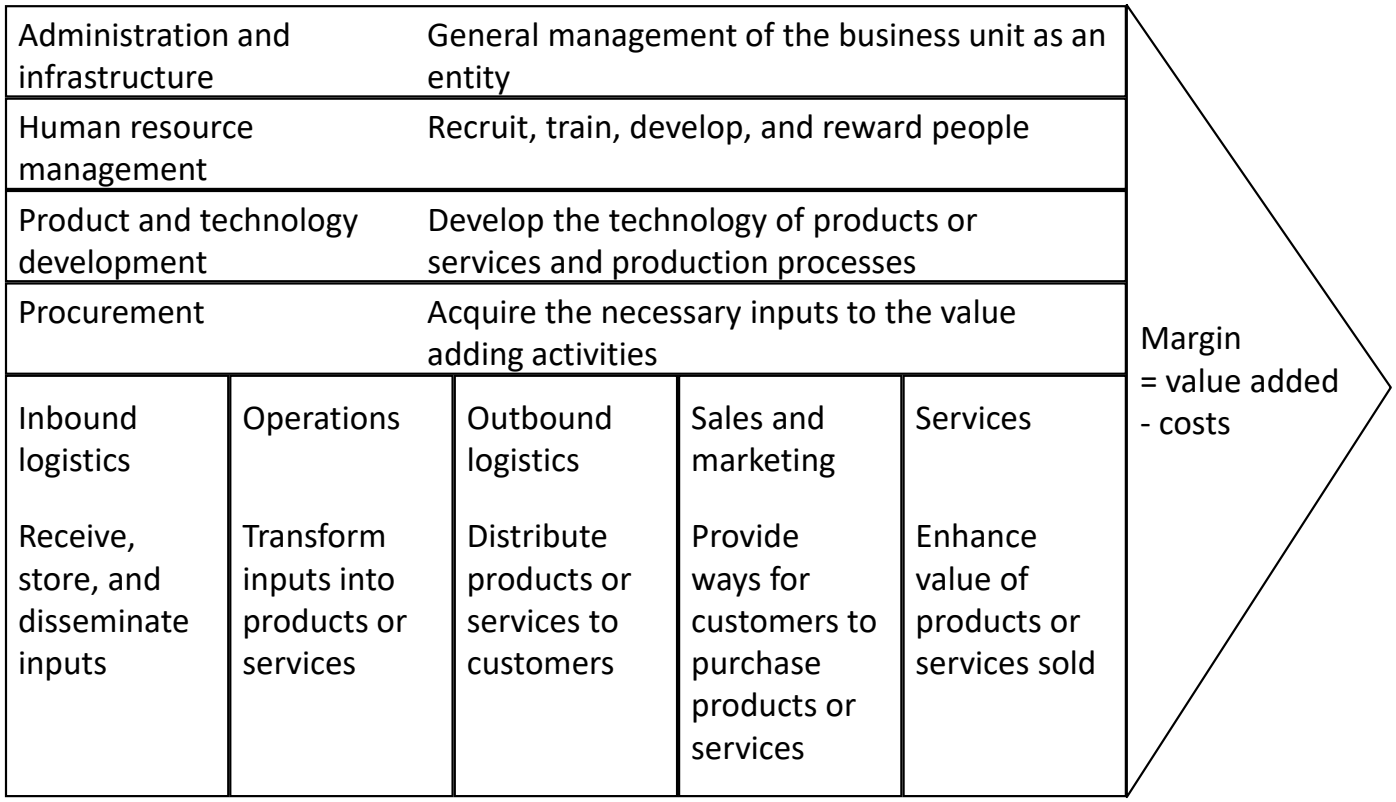
Dimensions of Competence



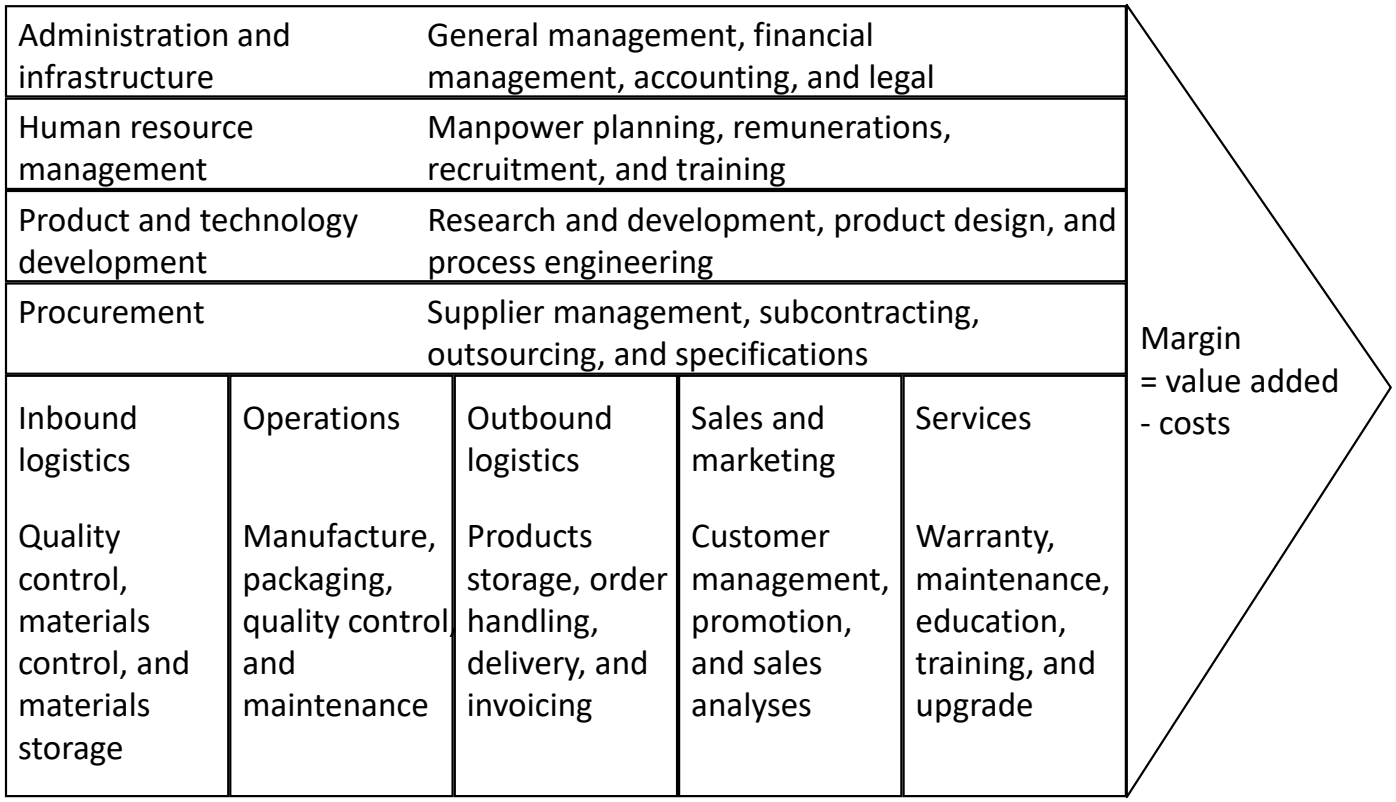
Value Chain Analysis

- Definition of an organization
  - A collection of activities that are performed to design, produce, market, deliver, and support its products
- Activities can be separated into primary and secondary
- Activities add value to satisfy customer requirements
- Activities incur costs by consuming resources
- Adopts a business unit perspective, independent of organizational structures

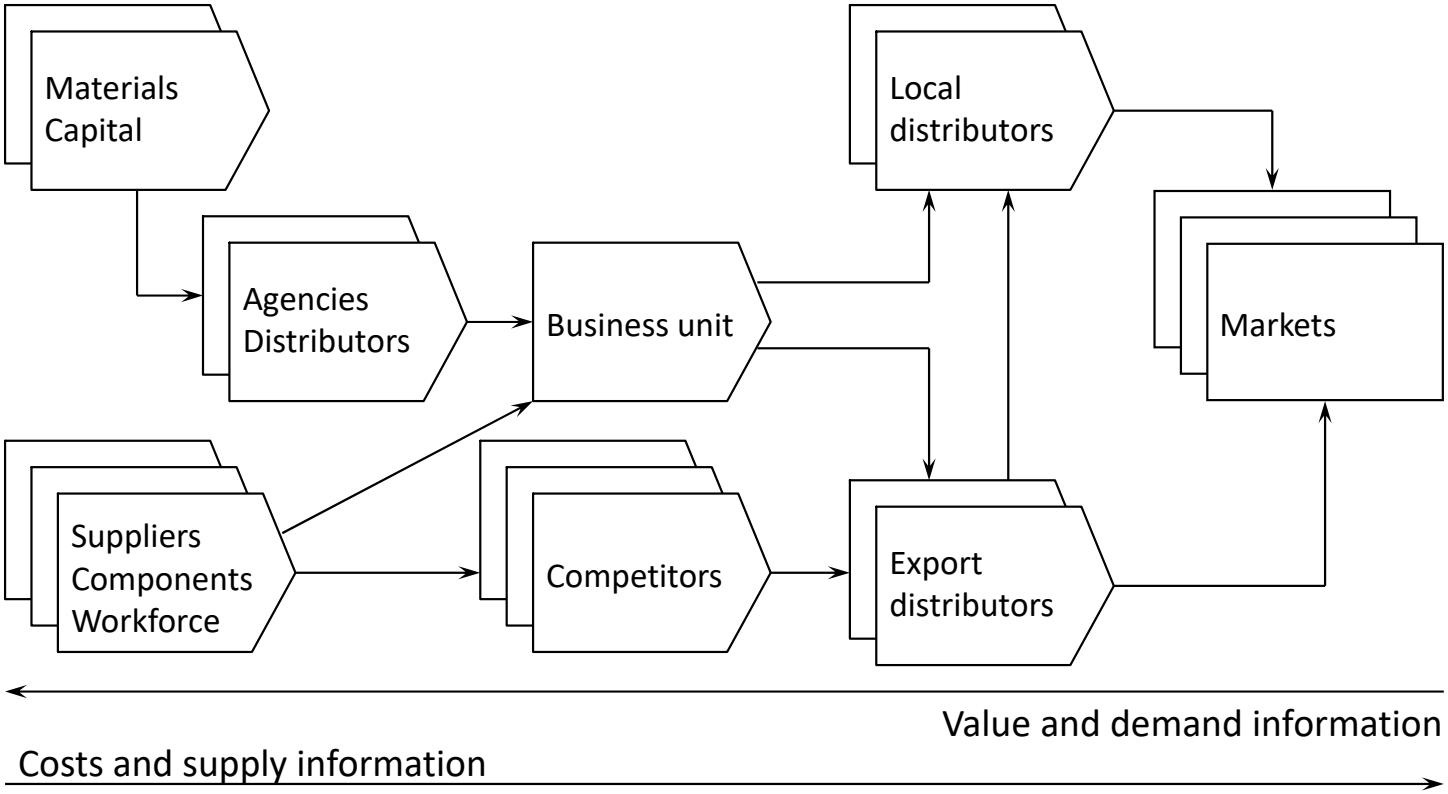
Value Chain Analysis



Value Chain Analysis



Value System Analysis



Strategic Options Generator

Strategic target / Strategic thrust	Competitors	Customers	Suppliers
Differentiation: Premium pricing through better perceived quality			
Cost: Aggressive pricing through better performance			
Innovation: New products, services, or processes that transform relationships			
Growth: Expansion in volume and flexibility without more overheads			
Alliance: Agreements or joint ventures that enhance other strategic thrusts			

Strategic Options Generator

- Competitors - Can we use IS to:
  - Raise the entry costs of potential competitors?
  - Differentiate or create new products or services?
  - Reduce our costs or increase their costs?
  - Control the channels of distribution?
  - Identify or establish new market niches?
  - Form joint ventures to enter new markets?
- Customers - Can we use IS to:
  - Reduce their costs or increase their revenues?
  - Increase their switching costs to alternative suppliers?
  - Increase their knowledge of our products or services?
  - Improve our services to them or reduce the costs of existing services?
  - Discover more about their needs?
  - Identify new potential customers?

Strategic Options Generator

- Suppliers - Can we use IS to:
  - Improving our bargaining power over them?
  - Reduce our buying costs?
  - Reduce their selling costs?
  - Be a better customer and obtain a better service?
  - Identify alternative potential suppliers?
  - Improve the quality of products or services purchased?

Resource Life Cycle Analysis

- Products are resources from customer perspective
- Four stages of resource management
- Requirements
  - Establish quantity requirements and specify attributes
- Acquisition
  - Select sources of purchase, order resources, authorize and pay for resources, acquire resources, and test resources against specifications
- Stewardship
  - Integrate resources with existing inventory, monitor access and use of resources, upgrade resources if necessary, maintain resources if necessary
- Retirement
  - Transfer or dispose of resources and account for expenditure on resources

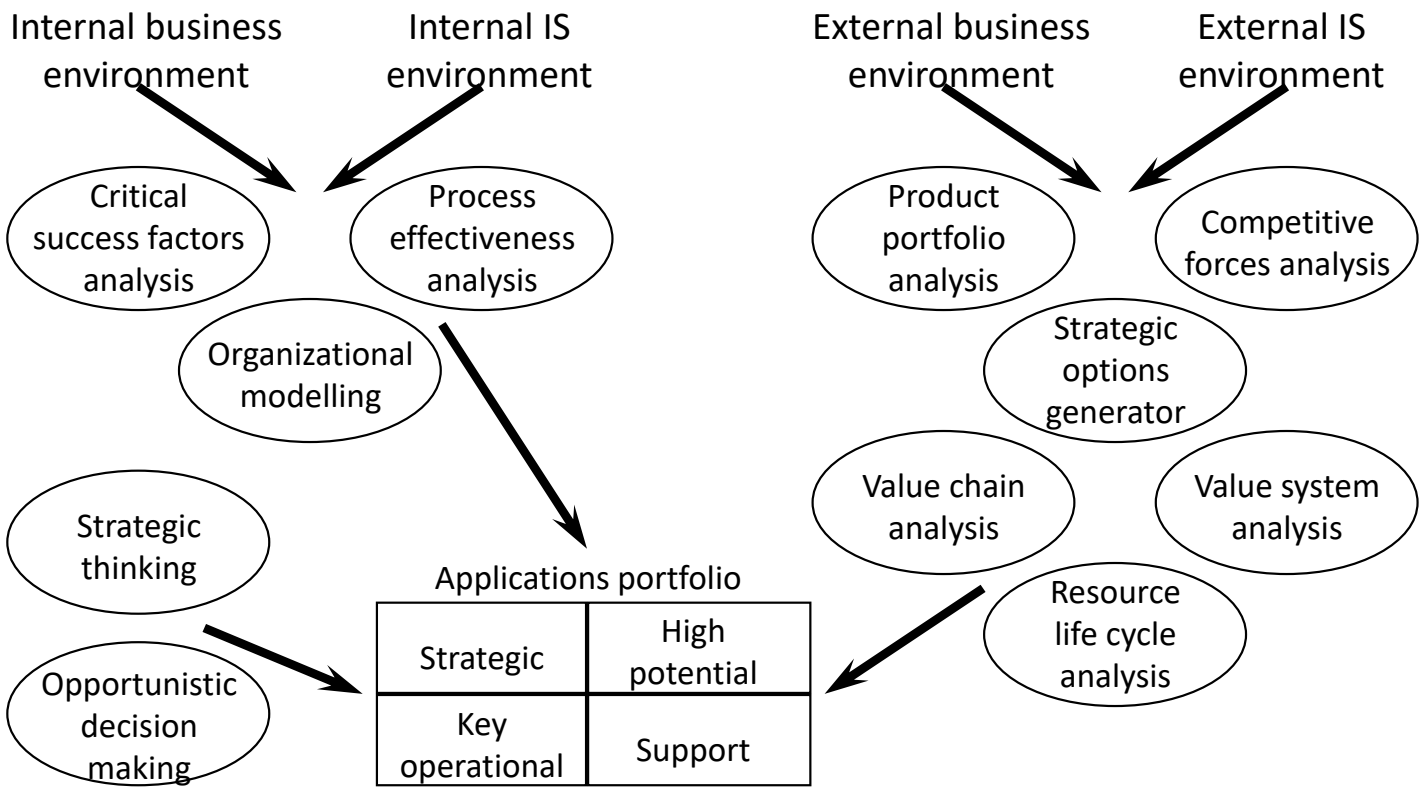
Comparison of Techniques

Technique	External linkage systems	Internal linkage systems	Product or service enhancement or innovation	Executive information systems
Critical success factors analysis	Low	Moderate	Low	High
Process effectiveness analysis	Low	High	Low	Nil
Value chain analysis	Nil	High	Low	Moderate
Value system analysis	High	Nil	Moderate	Low
Strategic options generator	Moderate	Moderate	High	Nil
Resource life cycle analysis	Low	Low	High	Nil

6. Determining IS Strategy

- Overview of IS planning process
- Framework for IS planning process
- Appraise IS relationship to business
- Determine short-term IS investments
- Identify long-term IS investments
- Multi-business unit organizations

Overview of IS Planning Process



Some Updates

TABLE 7.1 Implications for IS/IT of key strategy questions

Strategy questions	Tools and techniques	Implication for IS strategy process
Where to compete?	◆ 5-forces analysis ◆ PESTEL analysis	◆ Explore how IS/IT can/is affect(ing) industry forces and industry structure and competitive dynamics ◆ Identify economic, social, environmental and technology trends affecting industry evolution and customers ◆ Identify regulatory and legislative issues IS/IT can address
How to gain an advantage?	◆ PUV analysis, Business Model and Value proposition analysis	◆ Look for opportunities to informate existing products and services ◆ Explore how information can be used to refine the business model, particularly value proposition
	◆ Customer and Product Portfolio and life-cycle analyses	◆ Explore how customers use information in relation to your offering and value proposition ◆ Explore how information supports and affects the product life cycle
	◆ Industry Value Chain ◆ Analysis and Network Value Analysis ◆ Internal value chain (traditional, shop, network)	◆ Examine industry information flows for opportunities to share information or potential areas for disintermediation or new intermediaries
	◆ Strategic competences – operational excellence, customer intimacy and product/service leadership	◆ Identify how IS/IT can help outperform competitors in one or more dimension of competence

Credit: Peppard and Ward 2016

Some Updates

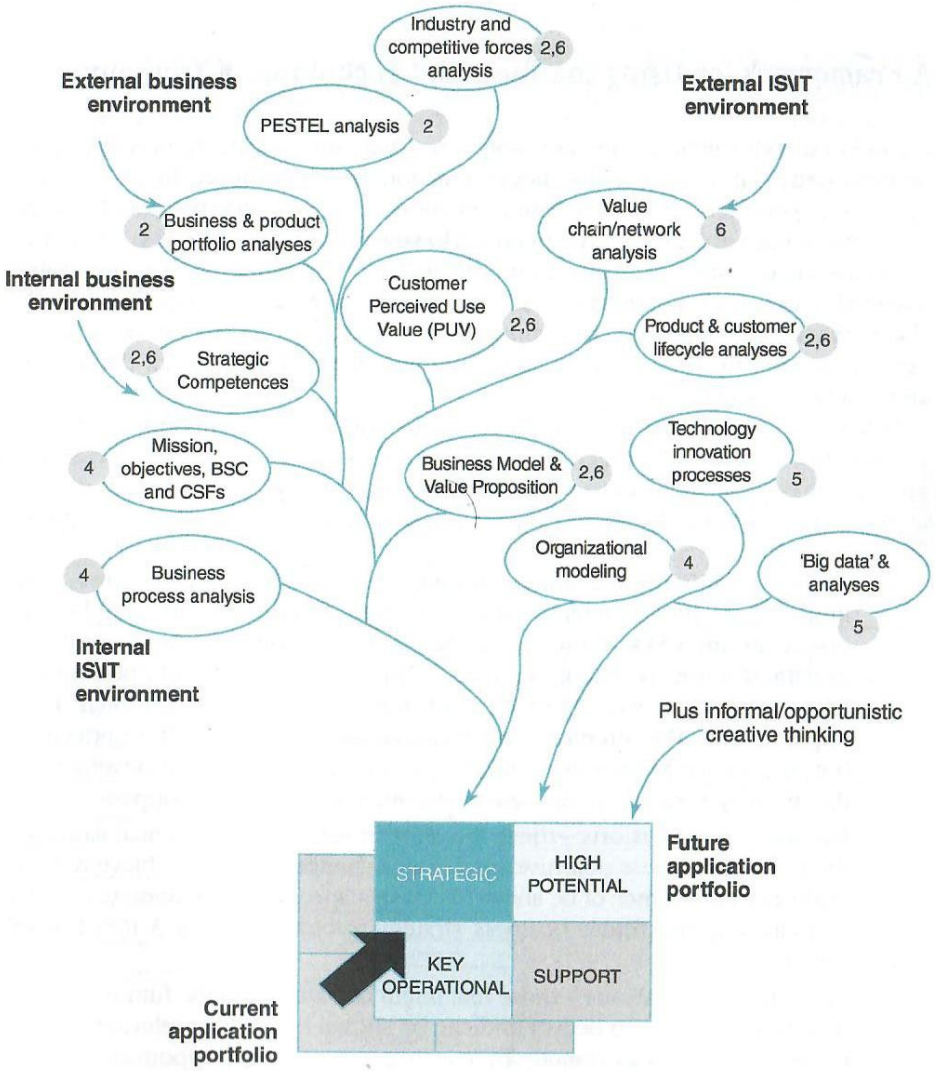
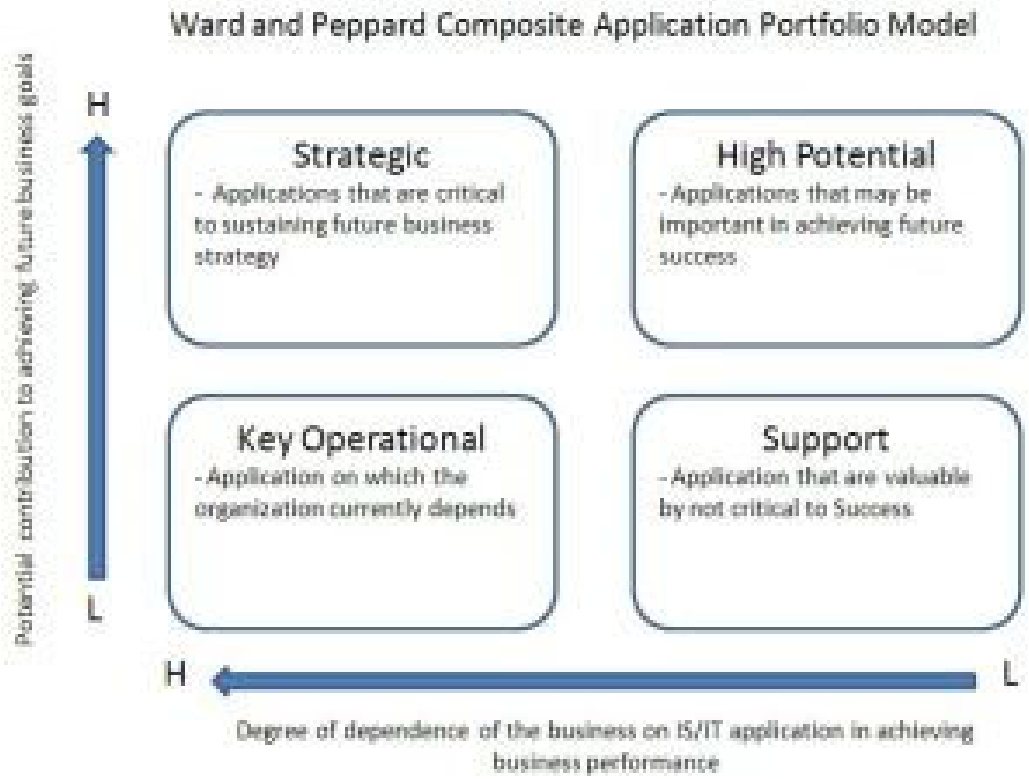


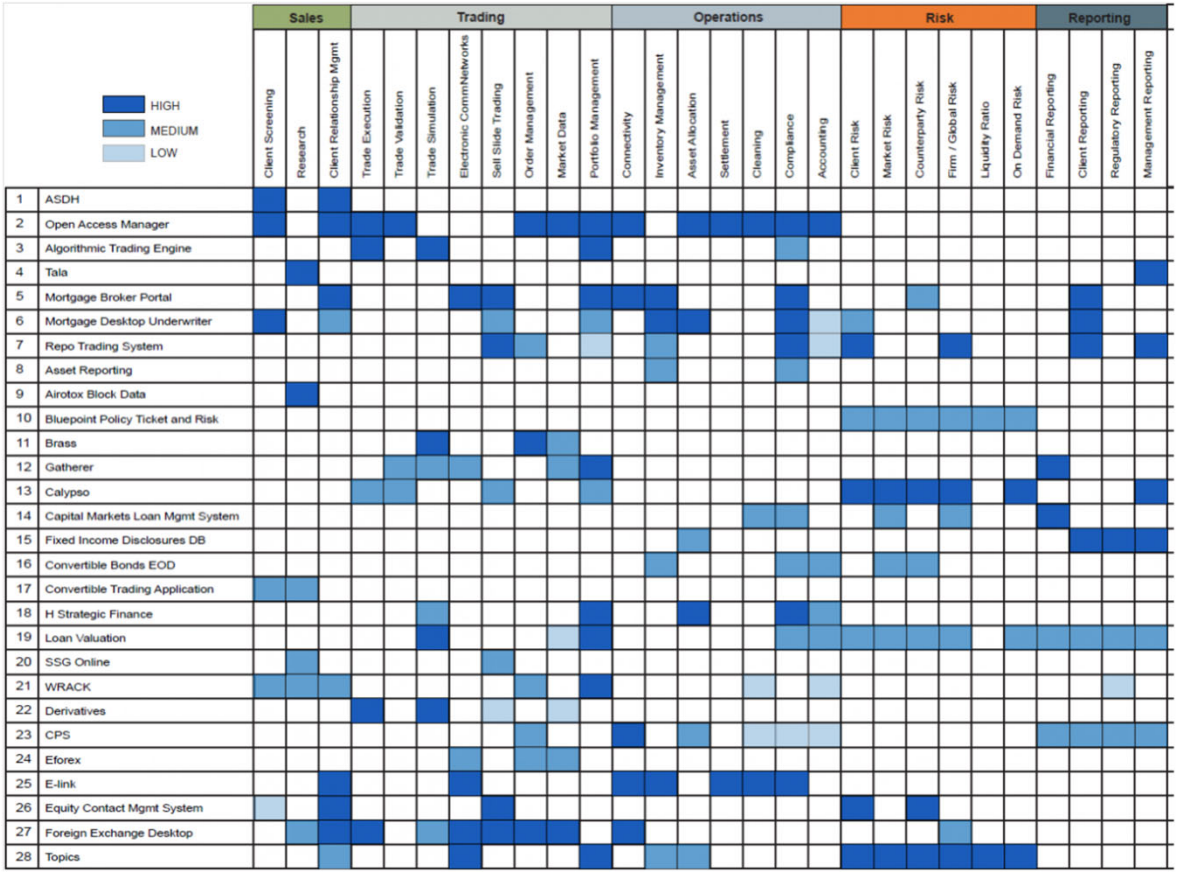
FIGURE 7.1 Building the application portfolio: inputs and toolkit.

Credit: Peppard and Ward 2016

Ward & Peppard Application Portfolio Model



Example of an Application Portfolio



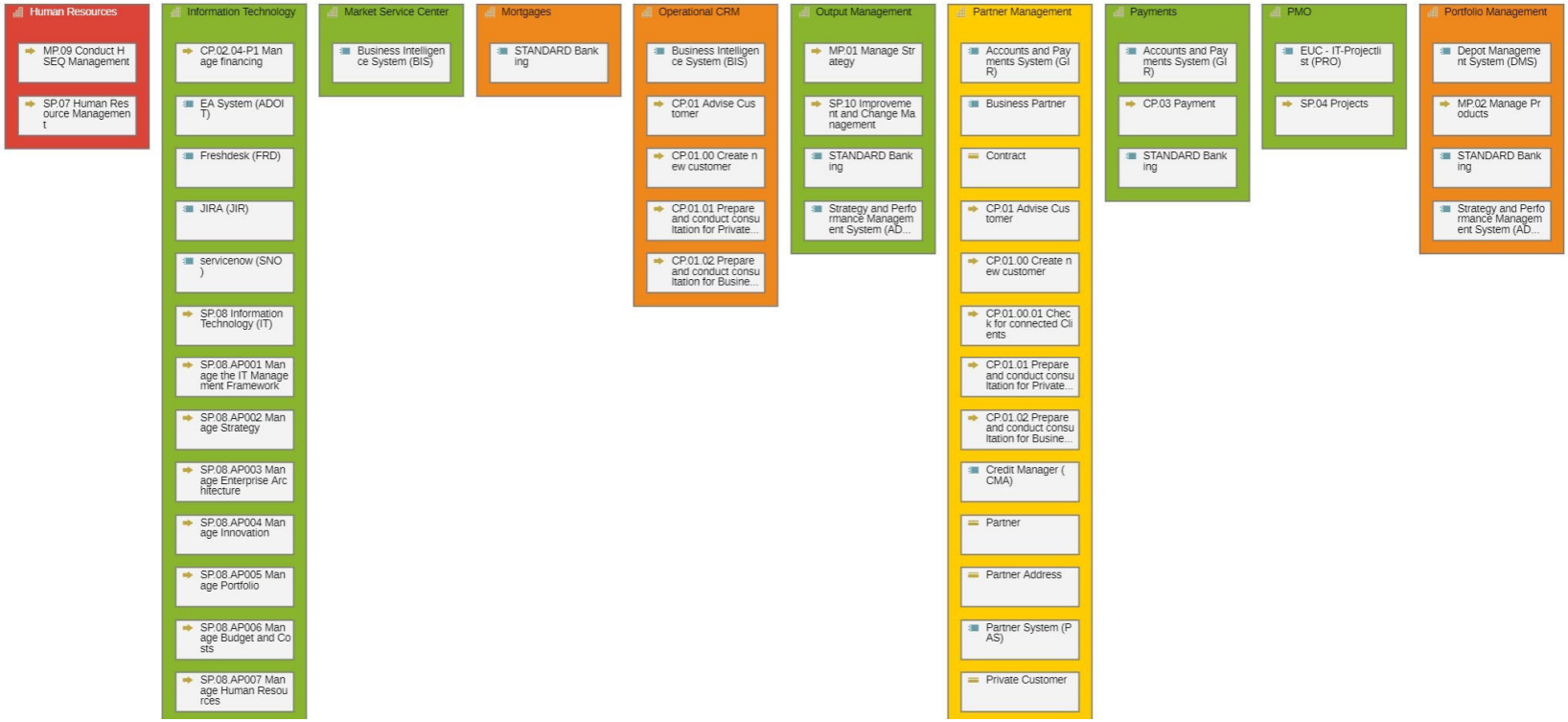
From Glitchdata

Example of Applications

	Type	Name	Description	Responsible business actors	Accountable business actors
1		Accounts and Payments System (GIR)	Global solution for payments	[2] Archi Arch (arch), IT	[1] Andrew Initiative (andrew)
2		ADOweb Consumer Banking (ADOweb)	The ADOweb Consumer Banking system is the front-end web interfa…	[1] Owen Owner (owner)	[1] Archi Arch (arch)
3		Anti Fraud Management System (AFM)	The Anti Fraud Management System is an IT-Service for the plannin…	[2] Archi Arch (arch), IT	[1] Andrew Initiative (andrew)
4		Archive (ARC)	Partner Data is archived on a regular basis.	[1] IT	[1] Archi Arch (arch)
5		Audit Documentation System (ADONIS-AUD)	ADONIS is the intuitive and suitable tool for all roles in business pro…	[2] Archi Arch (arch), IT	[1] Andrew Initiative (andrew)
6		Bank Equity System (BEQ)	Application for managing and controlling equity holdings of the bank.	[2] IT, Owen Owner (owner)	[1] Archi Arch (arch)
7		Business Intelligence System (BIS)	BI-Solution for reporting and controlling	[2] IT, Owen Owner (owner)	[1] Archi Arch (arch)
8		Business Partner	Application for the partner management of the bank.	[2] Archi Arch (arch), IT	[1] Andrew Initiative (andrew)
9		Business Process Management System (ADONIS)	ADONIS is the intuitive and suitable tool for all roles in business pro…	[2] Archi Arch (arch), IT	[1] Andrew Initiative (andrew)
10		Capital Returns Tax System (TAX)	Calculation and payment of Capital Returns Tax	[2] Archi Arch (arch), IT	[1] Andrew Initiative (andrew)
11		Cash System (CAS)	Application for all cash services	[1] IT	[1] Archi Arch (arch)
12		Core Banking System (CBS)	Set of all Core Banking relevant systems	[1] IT	[1] Archi Arch (arch)
13		Credit Card Management System (CRE)	Managing all credit card services	[2] Archi Arch (arch), IT	[1] Andrew Initiative (andrew)
14		Credit Manager (CMA)	Data on credit applications and existing loans is imported from differ…	[2] IT, Owen Owner (owner)	[1] Archi Arch (arch)
15		Depot Management System (DMS)	Application to execute a full loans and deposits life-cycle for different…	[2] IT, Owen Owner (owner)	[1] Archi Arch (arch)
16		EA System (ADOIT)	Enterprise Architecture Management requires teamwork. ADOIT is th…	[2] Archi Arch (arch), IT	[1] Andrew Initiative (andrew)
17		EUC - IT-Projectlist (PRO)	Application for the management of the project portfolio.	[1] IT	[1] Archi Arch (arch)
18		Financial Closing Cockpit System (FCC)	The application automates and optimizes accounting processes to e…	[1] IT	[1] Archi Arch (arch)
19		Freshdesk (FRD)	Freshdesk, a cloud based customer support software is the initial pr…	[2] IT, Owen Owner (owner)	[1] Archi Arch (arch)
20		ID Live (ID)	With the aid of ID Live, video identification can be seamlessly integr…	[1] Owen Owner (owner)	[1] Archi Arch (arch)
21		Internal Control System (ADONIS-ICS)	ADONIS-GRC allows you to illustrate all systematic and technical rul…	[2] Archi Arch (arch), IT	[1] Andrew Initiative (andrew)
22		Invoice Management System (IMA)	Invoice Management is the banks application for the digital processi…	[1] IT	[1] Archi Arch (arch)
23		JIRA (JIR)	JIRA is a proprietary issue tracking product, developed by Atlassian. …	[2] IT, Owen Owner (owner)	[1] Archi Arch (arch)
24		Legitimation Management System (LES)	Legitimation of partners	[2] IT, Owen Owner (owner)	[1] Archi Arch (arch)
25		Online Recruiting System (ORS)	The Online Recruiting System (ORS) is an application for creating a…	No entry	[1] Archi Arch (arch)

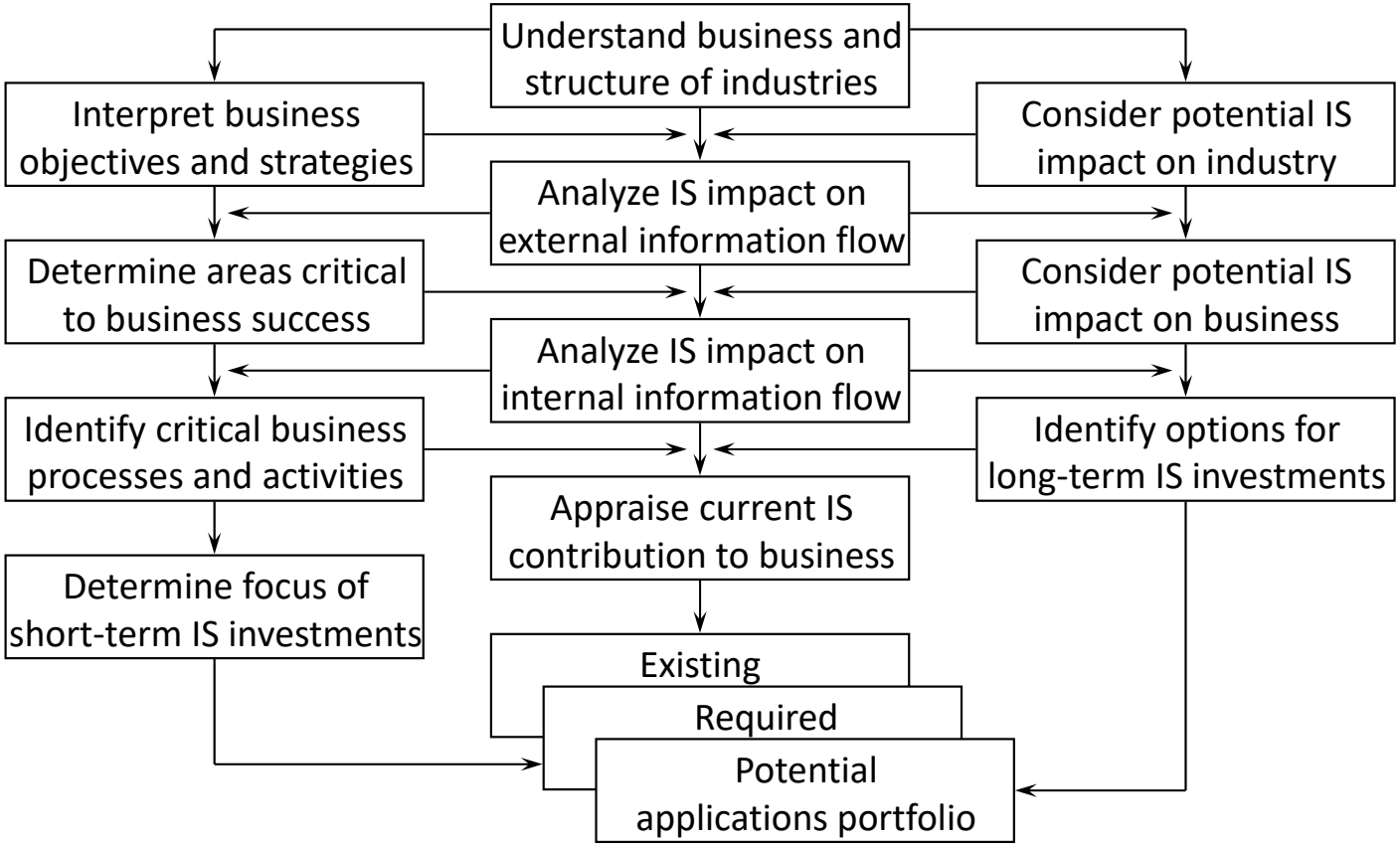
Credit: https://www.boc-group.com/en/blog/ea/application-portfolio-management-the-cornerstone-of-your-business-transformation

Example of Applications

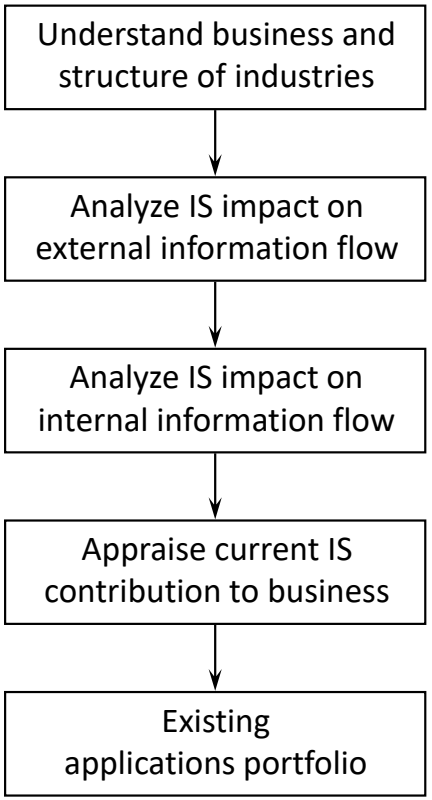


Credit: https://www.boc-group.com/en/blog/ea/application-portfolio-management-the-cornerstone-of-your-business-transformation

Framework for IS Planning Process



Appraise IS Relationship to Business



- Relationships among business units
- Maturity of and key players in industries
- Strength-weakness-opportunity-threat analysis and product portfolio analysis

- Current information flow among key players in industries
- Role of current IS on external information flow
- Value system analysis

- Current information flow among key business activities
- Role of current IS on internal information flow
- Value chain analysis

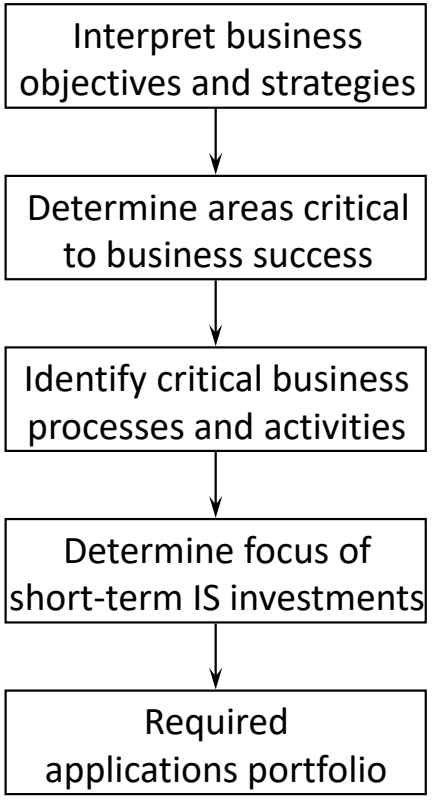
- External focus on competitors, customers, and suppliers
- Internal focus on primary business activities
- Strength-weakness-opportunity-threat analysis

- IS currently in place
- IS currently being developed
- 0 to 1 year time frame

Subsequently: Application Portfolio Management (APM)

Steps: https://www.ibm.com/think/topics/application-portfolio-management

Determine Short-Term IS Investments



- Things that the organization may do, wants to do, must do, and can do
- Organizational modelling

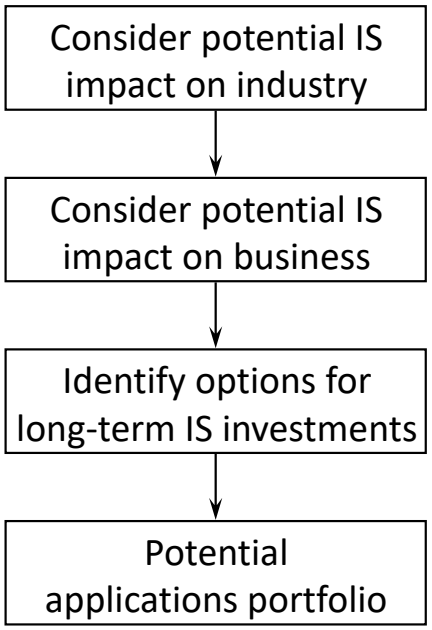
- Top management involvement and consensus
- Link IS and business strategies
- Critical success factors analysis

- Key activities are high value adding and high cost
- Link activities and critical success factors
- Value chain analysis and critical success factors analysis

- Focus on activities that produce immediate benefits
- Focus on key activities supporting critical success factors
- Strategic thinking and opportunistic decision making

- IS that can support short-term business objectives
- IS that can make specific business contributions
- 1 to 2 year time frame

Identify Long-Term IS Investments



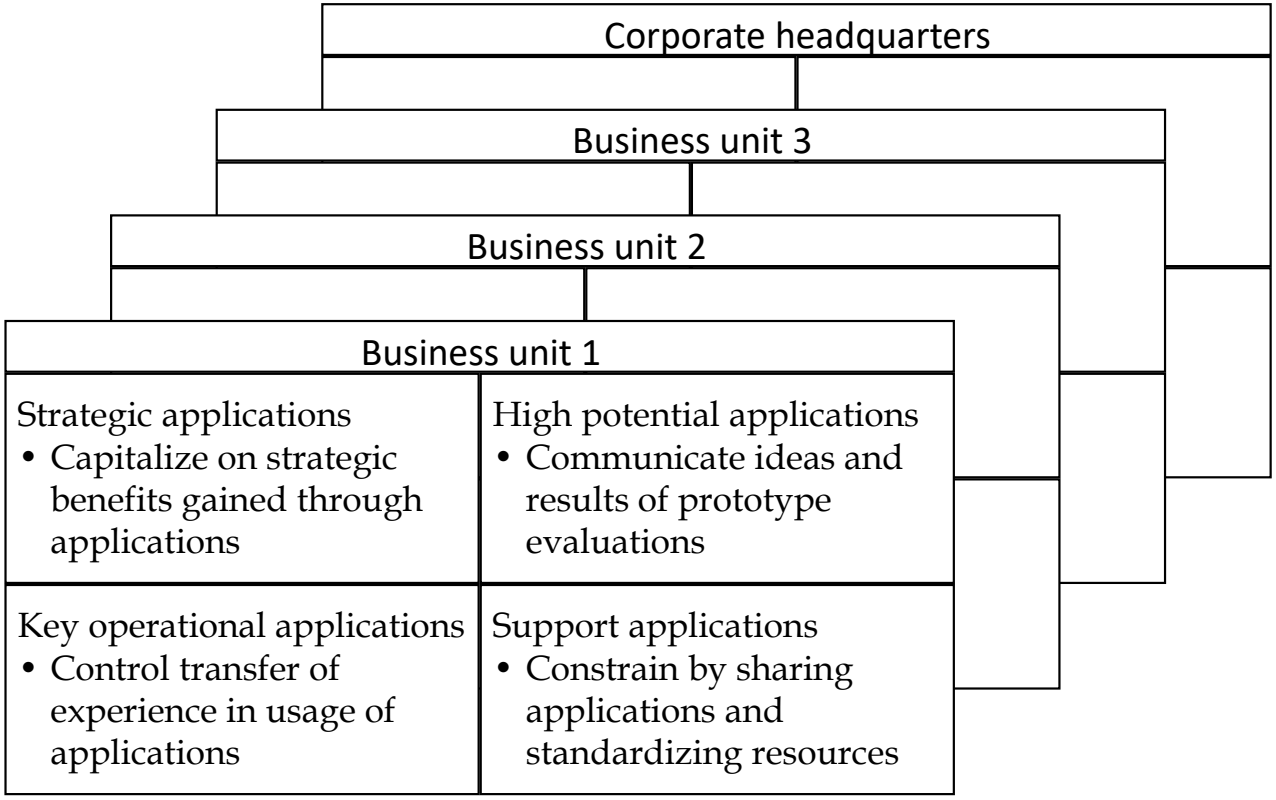
- Bargaining power of customers and suppliers
- Threat of current and potential competitors
- Strategic options generator and resource life cycle analysis

- Implications of future strategies on business activities
- Maturity of IS usage in the organization
- Value chain analysis and value system analysis

- IS options to change industry dynamics
- IS options to improve position of the organization
- Strategic thinking and opportunistic decision making

- IS that may significantly improve business performance
- IS that may make strategic business contributions
- 2 to 5 year time frame

Multi-Business Unit Organizations



Multi-Business Unit Organizations

- Benefits that can be derived from consolidation of applications depend on whether business units:
  - are in similar or comparable industries
  - are in similar competitive positions
  - have similar customers or suppliers
  - trade with each other
  - carry out similar business activities
  - have comparable objectives and strategies
  - must follow organization wide applications standards