

The REA Modeling Approach to Teaching Accounting Information Systems

The REA model was first conceptualized in a 1982 *Accounting Review* paper as a framework for building accounting systems in a shared data environment that anticipated the collaborative information systems settings of the present, both within enterprises and between enterprises.

The model's core feature was an object pattern consisting of two mirror-image constellations that represented semantically the input and output components of a business process. The REA acronym derives from that pattern's structure, which consisted of economic **R**esources, economic **E**vents, and economic **A**gents. The semantic framework has now been extended to include abstract specification of future resource commitments along both supply and value chains, and REA is a candidate model for several e-commerce transaction standards in ISO and the United Nations.

Simultaneous with its research publication, REA began to be used as a framework for teaching accounting information systems (AIS), both at its originating institution of Michigan State University and then gradually at other colleges and universities as well. Its instructional use was accelerated in the early 1990s by the widespread availability of relational database systems, in the late 1990s by the increasing adoption of enterprise resource planning (ERP) systems, and in the early 2000s by the introduction of collaborative e-commerce systems. In 2003, REA modeling is a key component of many AIS textbooks and many AIS courses, both in the USA and internationally. REA is used as the organizing framework for the American Accounting Association's introductory summer program for new AIS teachers.

Painter

<u>PAINTER NAME</u>	BIRTH YEAR
Van Gogh	1853
Morisot	1841
Magritte	1898
Picasso	1881
Hopper	1882
daVinci	1452

Painting

<u>PAINTING NAME</u>	YEAR FINISHED
Starry Night	1889
The Cradle	1872
On the Balcony	1872
Time Transfixed	1939
Guernica	1937
Nighthawks	1942
The Last Supper	1497
Mona Lisa	1506

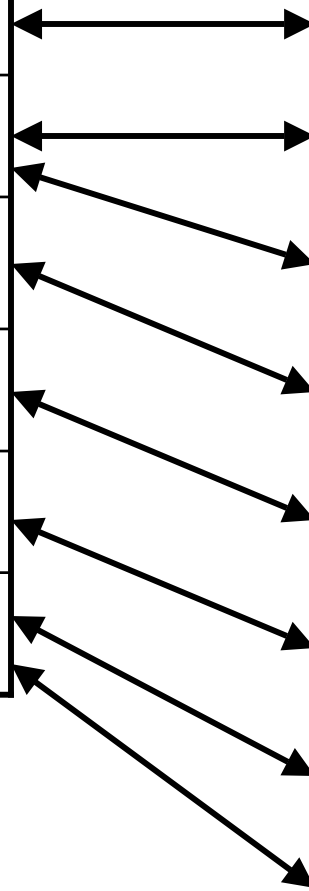
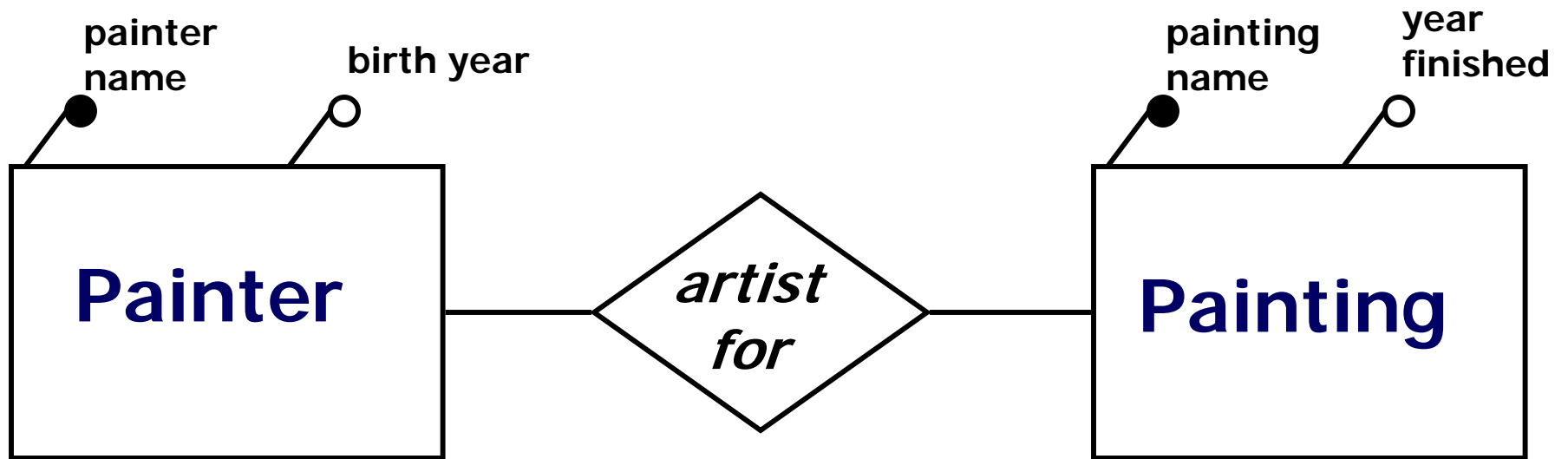


Figure 1 – Two Relational Tables



Rectangle = entity
Diamond = relationship
Circle = attribute

Figure 2 – Entity-Relationship Notation

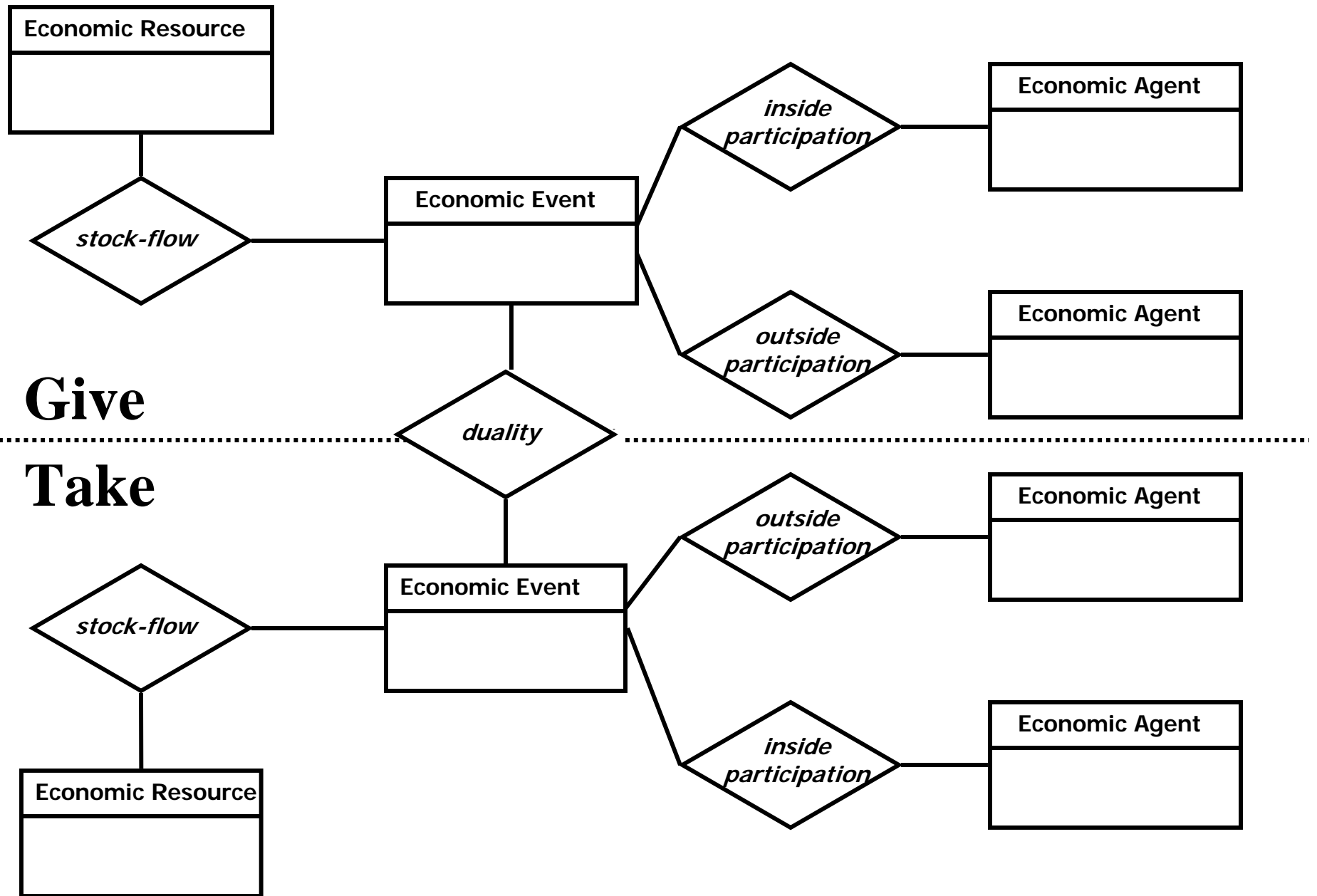


Figure 3 – The REA Pattern

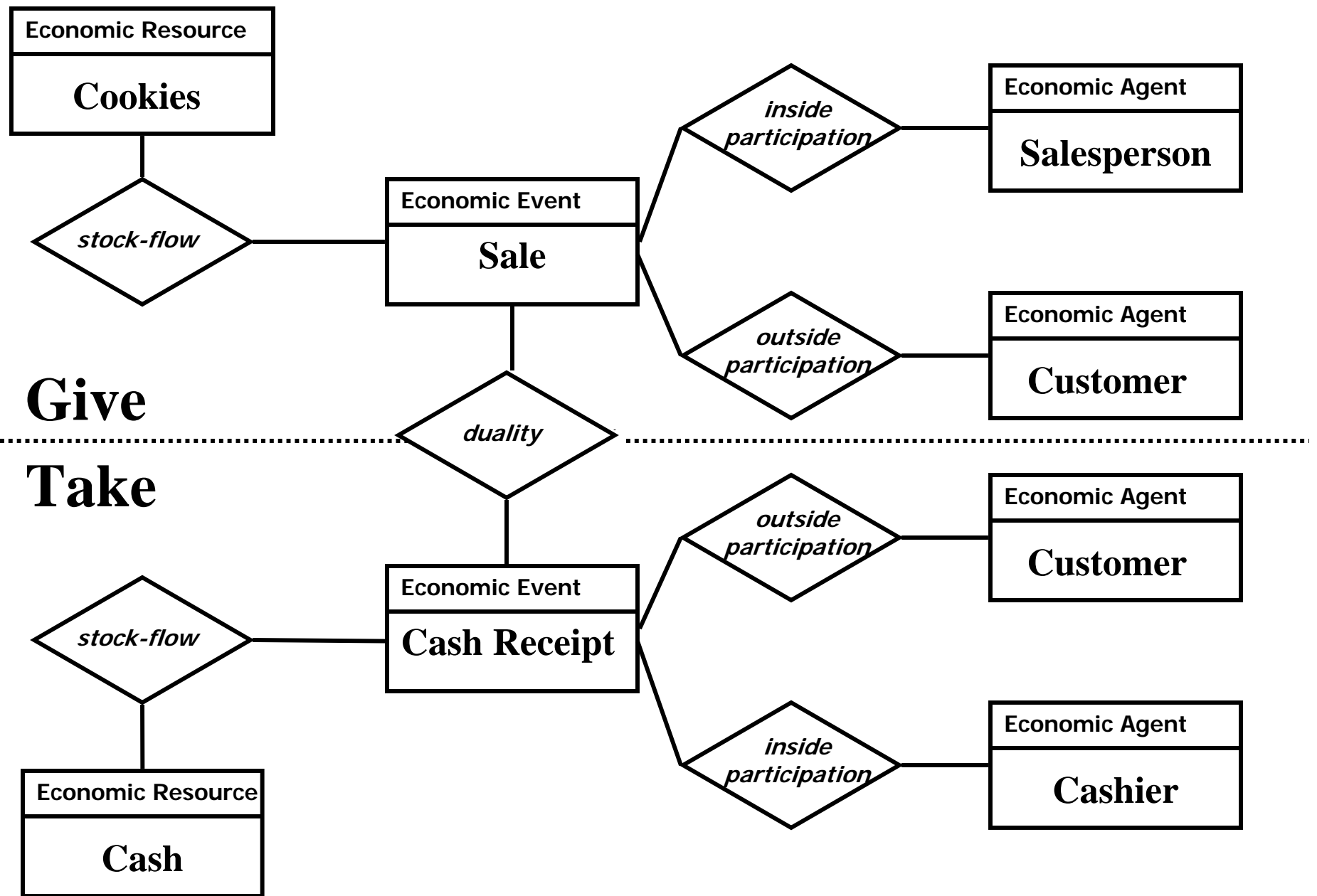


Figure 4 – REA Revenue Cycle Example

COOKIES

<u>Product#</u>	<u>Description</u>	<u>Price</u>	<u>QOH</u>
P-1	Chocolate Chip	1.05	200
P-2	Chocolate	.95	205
P-3	Peanut Butter	1.00	97
P-4	Pecan	1.10	257

COOKIES-stockflow-SALE

<u>Product#</u>	<u>Invoice#</u>	<u>Quantity</u>
P-2	I-1	5
P-3	I-1	10
P-3	I-2	20
P-4	I-3	9
P-1	I-4	4
P-3	I-4	5

SALE

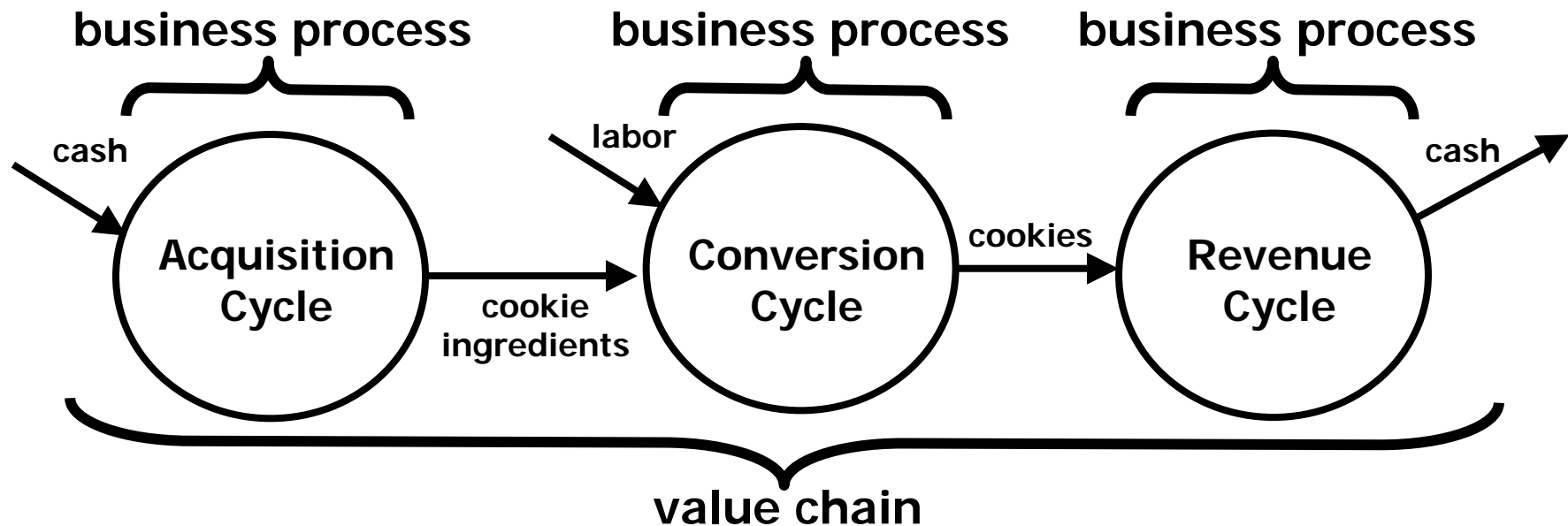
<u>Invoice#</u>	<u>Dollar Amount</u>	<u>Date</u>	<u>Salesperson Employee#</u>	<u>Customer #</u>
I-1	14.75	1JUL	E-1234	C-987
I-2	20.00	2JUL	E-1235	C-888
I-3	9.90	3JUL	E-1236	C-999
I-4	9.20	5JUL	E-1237	C-999

SALE-duality- CASH_RECEIPT

<u>Invoice #</u>	<u>Receipt Timestamp</u>	<u>Amount Applied</u>
I-1	2JUL0830	14.75
I-2	3JUL0800	2.00
I-2	5JUL0800	18.00
I-3	8JUL1145	9.90
I-4	8JUL1145	9.20

Figure 5 – Partial Database for Revenue Cycle

A business process is a set of activities that takes one or more kinds of input and creates an output that is of greater value to the customer.



A value chain is a purposeful network of business processes aimed at assembling the individual components of a final product (i.e., its portfolio of attributes) of value to the customer

Figure 6 – Definitions of *Business Process* and *Value Chain*

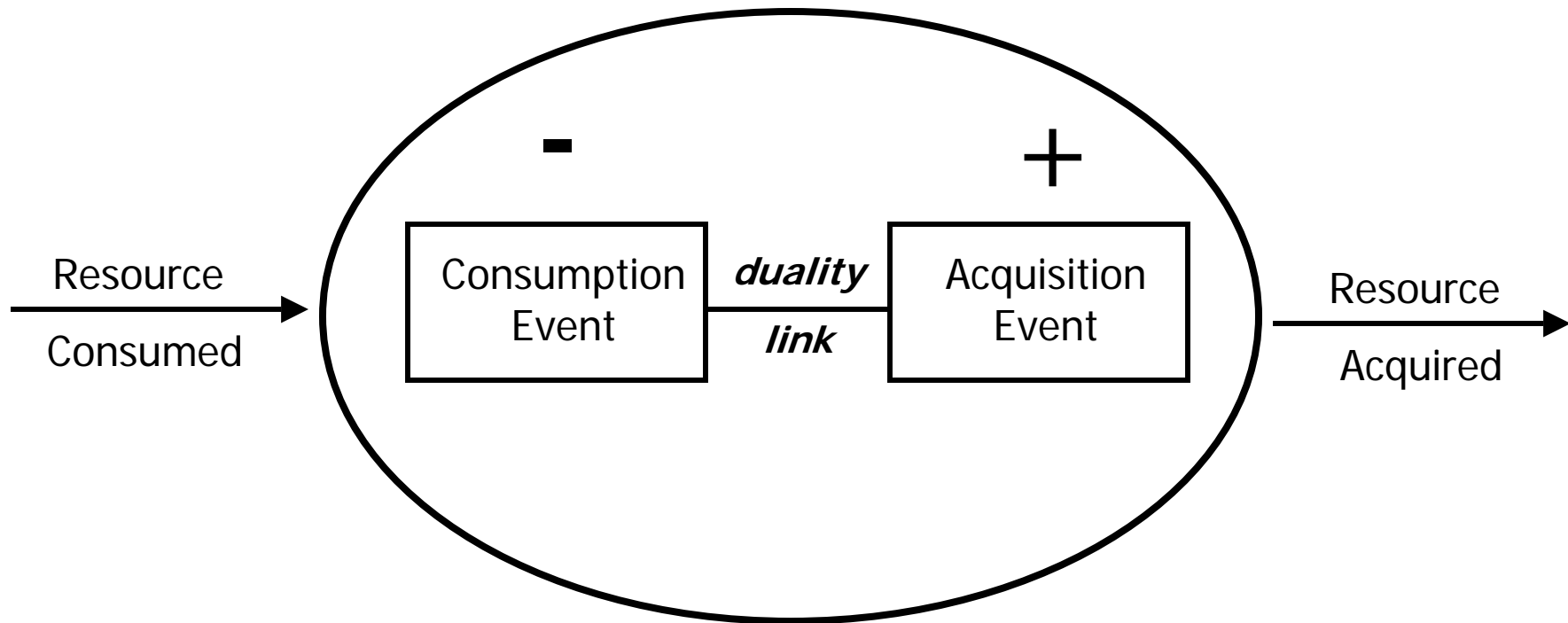


Figure 7 – REA Shorthand Notation for Enterprise Value Chain

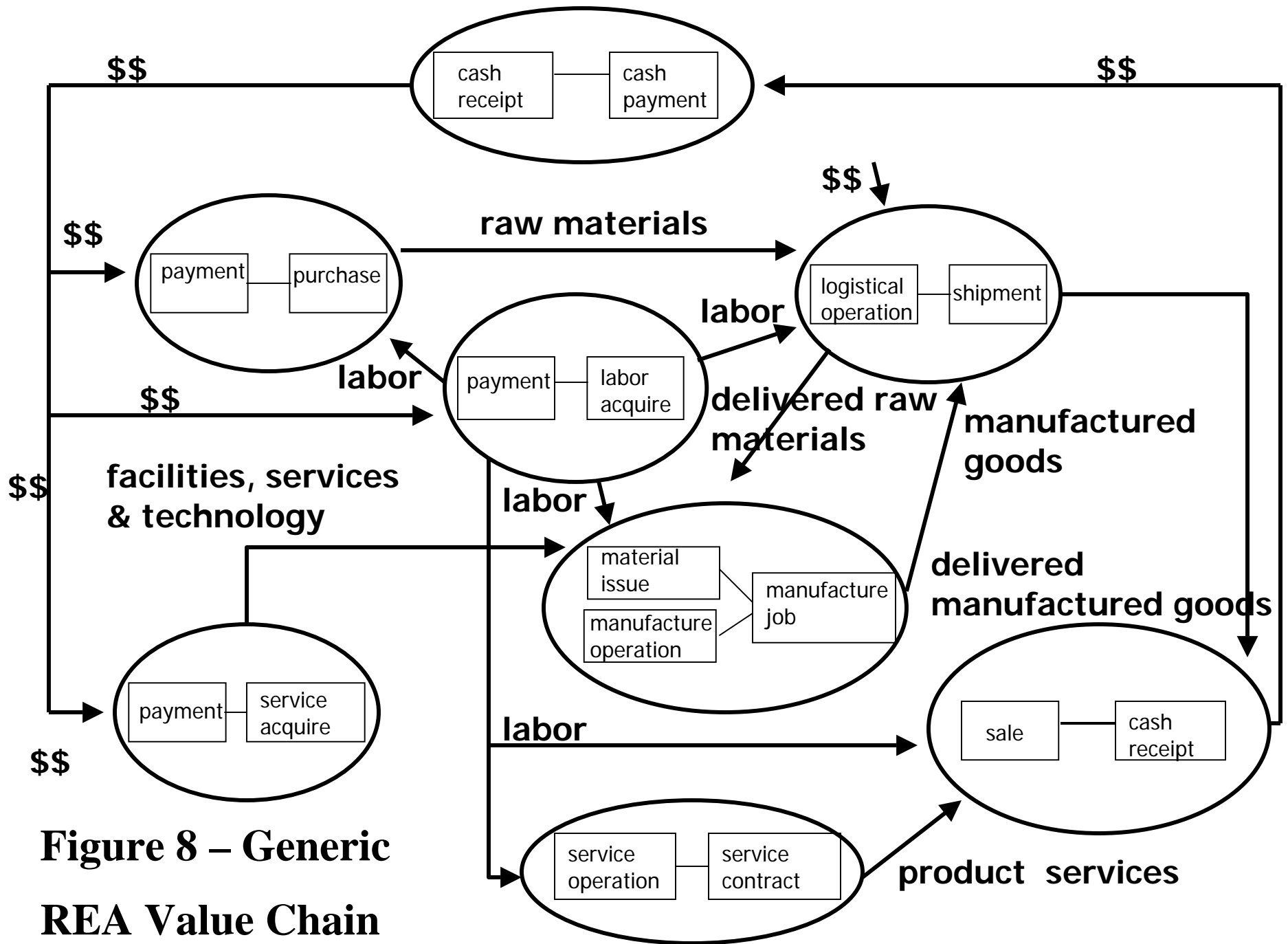


Figure 8 – Generic REA Value Chain

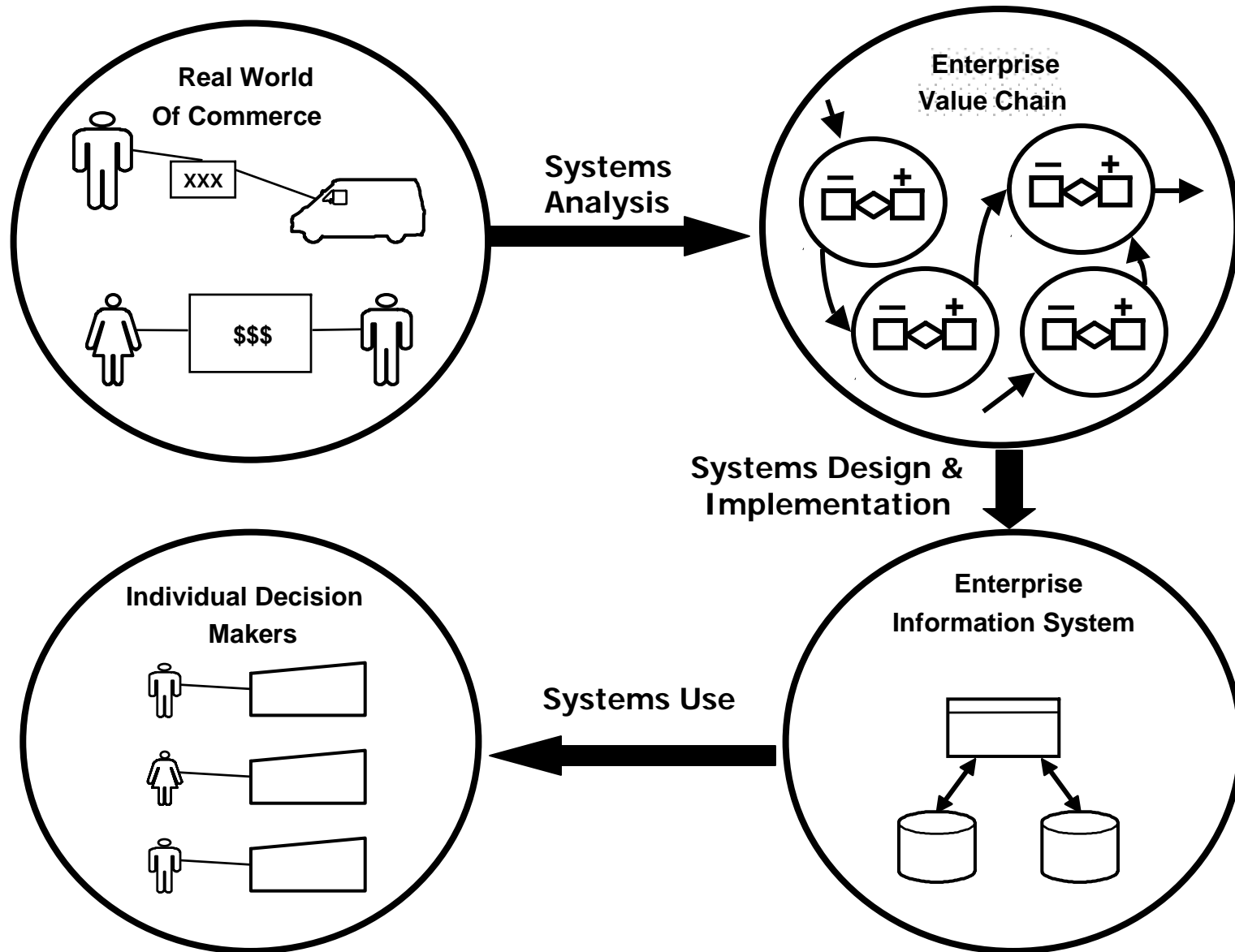


Figure 9 – Different Skills for AIS Courses