

**TOC****INDEX****VIEW****B02 Integration using Domain Models***Barry Devlin, Distinguished Engineer, BI Executive Consultant, IBM Ireland Ltd.*

Having positioned and defined integration needs and approaches in the overview session on integration, we now take a deeper dive into how this is implemented, with special emphasis on the Financial Services industry, although the techniques shown can be equally applied across any business. This presentation describes how Domain Models form the basis for integration projects. We look at IBM's Banking and Insurance models and show how they allow us understand the business needs, the information, function and processes required, and their translation into real, working systems. This is shown through a simple scenario of a common business need today - how to respond quickly, personally and appropriately to a customer request. But underlying this simple need as a serious set of integration issues - from data to process and across the entire business.

# B02

## Integration using domain models

Dr. Barry Devlin

A decorative graphic consisting of a horizontal bar with rounded ends, filled with a dark green color and outlined in a lighter green. The bar is surrounded by several smaller, semi-transparent green circles of varying sizes, creating a bubbly effect.

**IBM Data Management Technical Conference**

**Anaheim, CA**

**Sept 9 - 13, 2002**



# Agenda

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## ➤ **Recap**

- The business imperative
- Inhibitors in today's environment
- An Enterprise Integration Framework

## ➤ **Building a new integrated application**

- The information aspect
- The component aspect
- The process aspect

## ➤ **The integrated application in action**



# The rapidly changing business environment poses difficult questions for all enterprises.

## Expense

How can I significantly improve my expense ratios and still move quickly?

## Society

What do changing customer needs and regulations mean for my business?

## Customers

In a world of suspect loyalty, how do I enhance my customer base?

## Products

What new products will I need to be a leader?

## Marketing

How do I manage my brand(s)? Do I need a new one?

## Regulation

How do I satisfy reporting needs at minimum cost?

## Organization

Have I got the right structure and people?

## Revenue

How do I compensate for lack of growth in the core business?

## Technology

Which technologies will benefit me most?

## M&A

What's the right M&A play for me? How can I make it pay off?

## Risk

How can I manage my exposure to the next crisis?

## Value

What is my new value-proposition for my profitable customers?

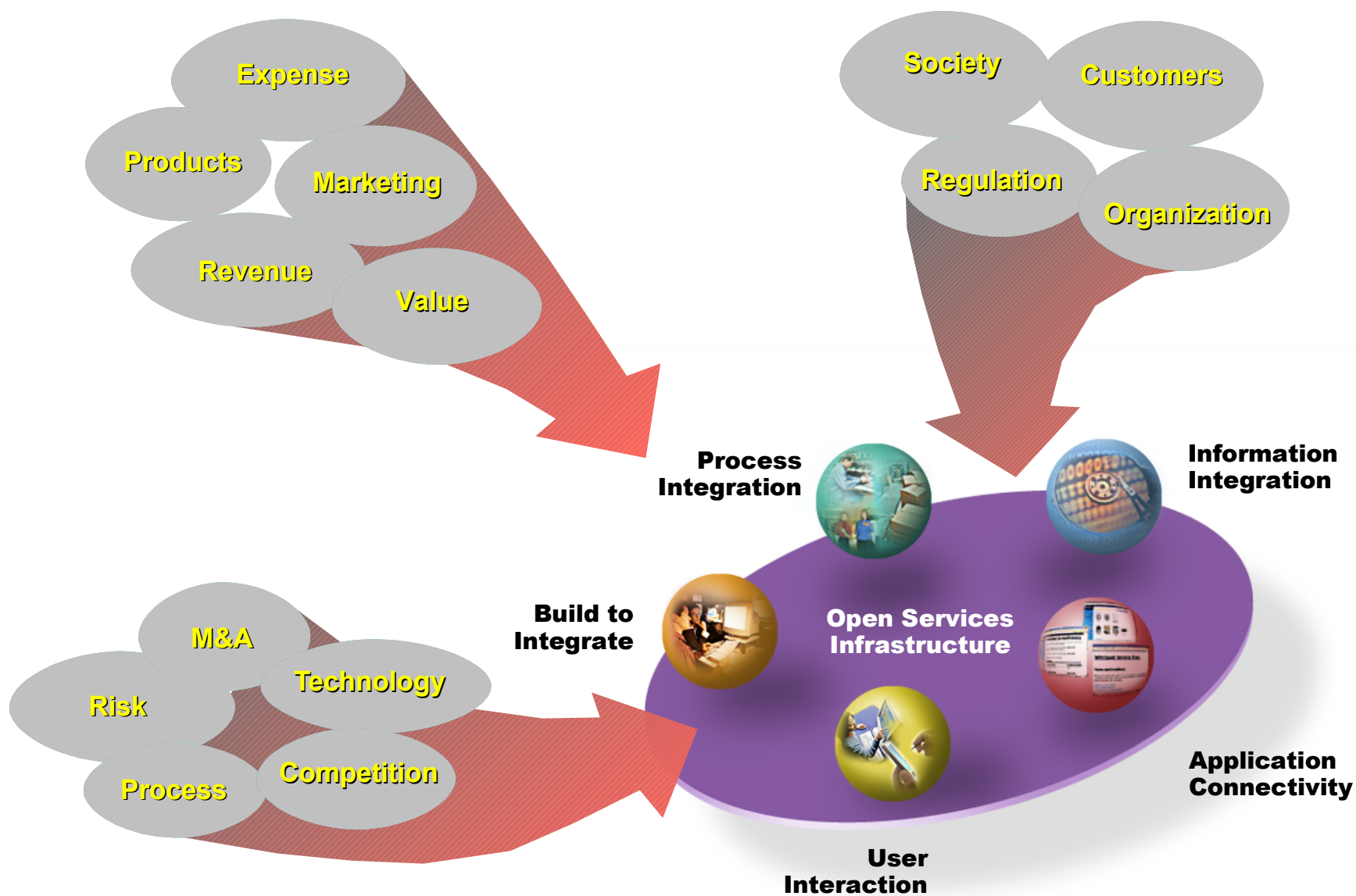
## Process

How do I become an e-business?

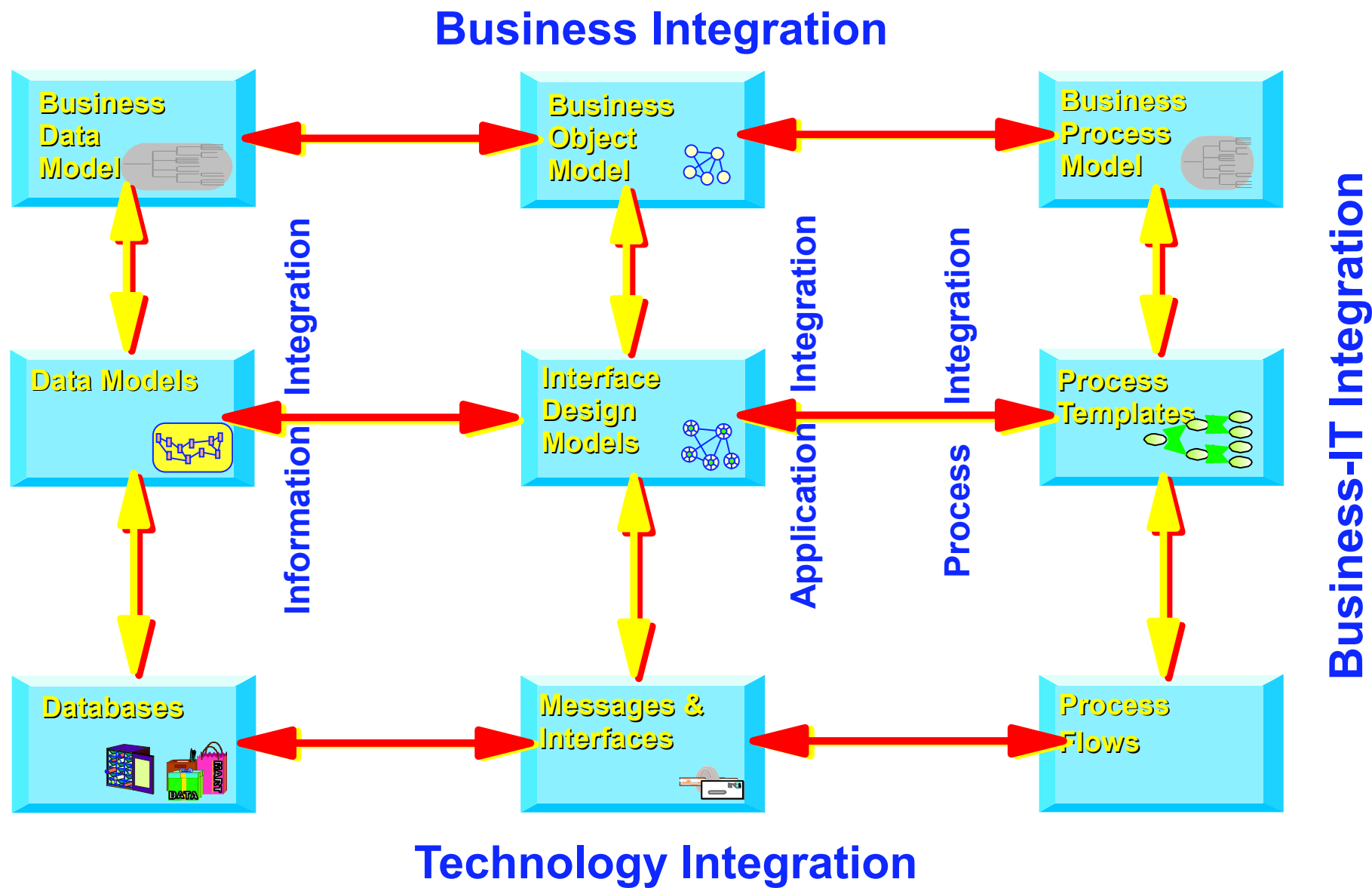
## Competition

How do I compete with new entrants?

@ Each of these issues demands extensive integration of existing and new systems in the enterprise.

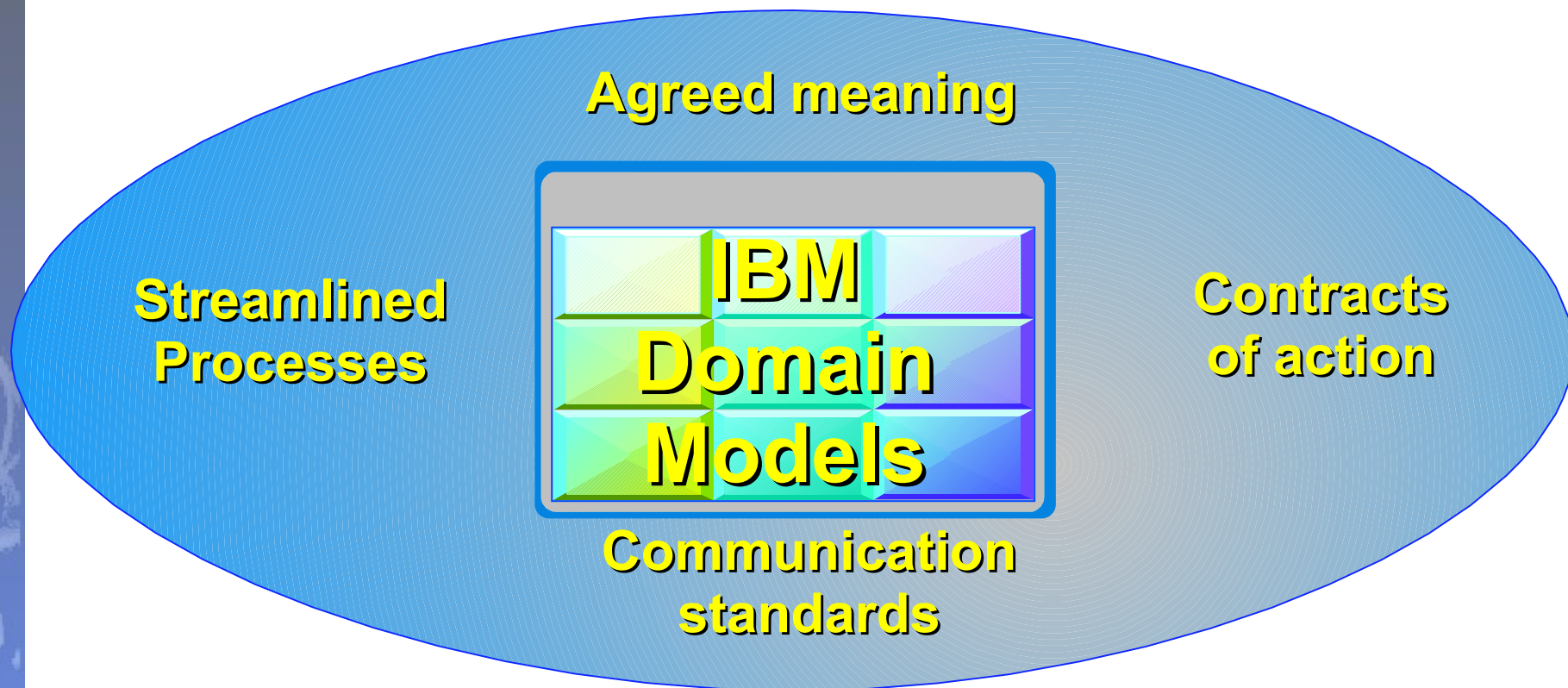


# The nine-cell Enterprise Integration Framework describes all aspects of integration.





The fundamental basis for any integration is a comprehensive set of **domain (or business) models**.



The following scenario describes how a retail bank can implement a typical integrated application using IBM's Domain / Business Models



# The management meeting

Do you realize how long it takes for us to approve a simple loan request from an existing client?

And our customers are complaining about our service hours...

What about an e-business Loan Processing Application for personal loans to existing customers?

How can I possibly do that??

Personal Lending Manager

CEO

IT Manager





# @ The existing IT environment is a complex, unintegrated mix of old and new systems.



This won't be easy! A new loan processing system will need links to almost everything.

First, we need to enhance our web channel for PDA support...

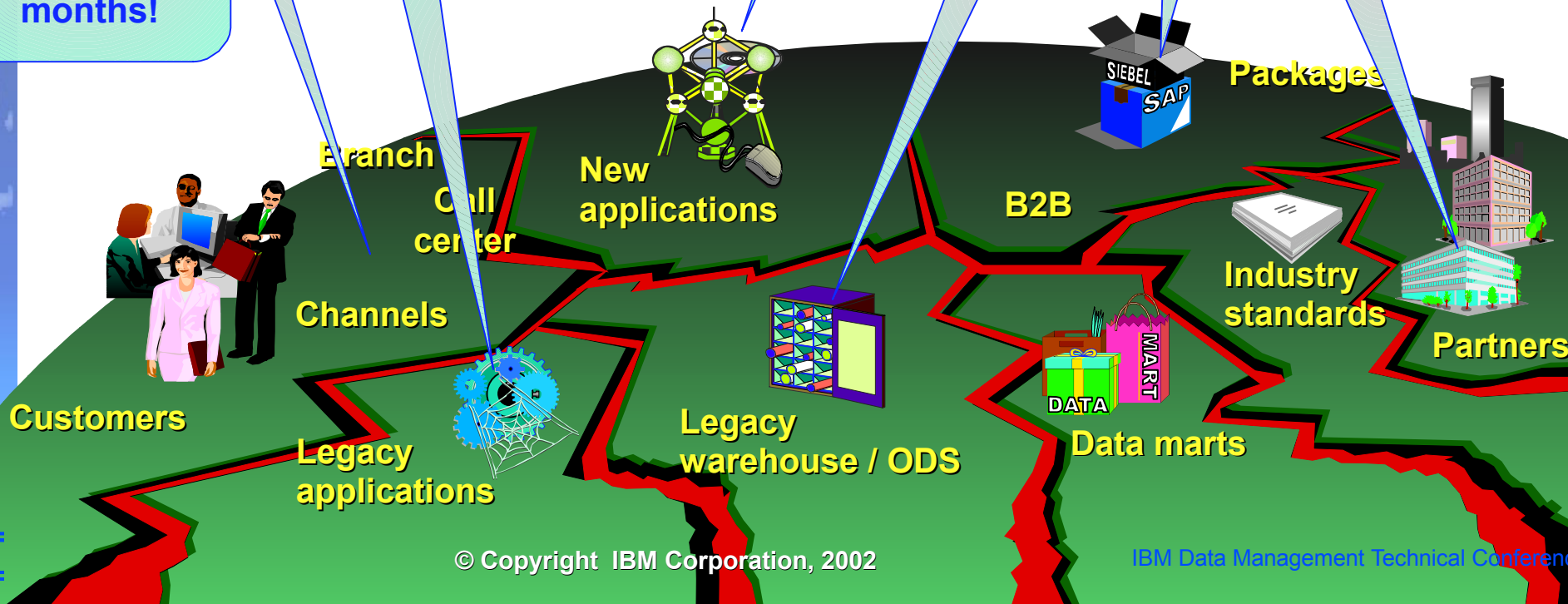
Not to mention, deliver in 6 months!

...link to our legacy sales scoring system - critical but difficult to upgrade...

...to access a brand new loan application system, which in turn has to...

...as well as provide data to our warehouse and SAP Financials, and then ...

...link to our credit agencies using industry standards for interchange.

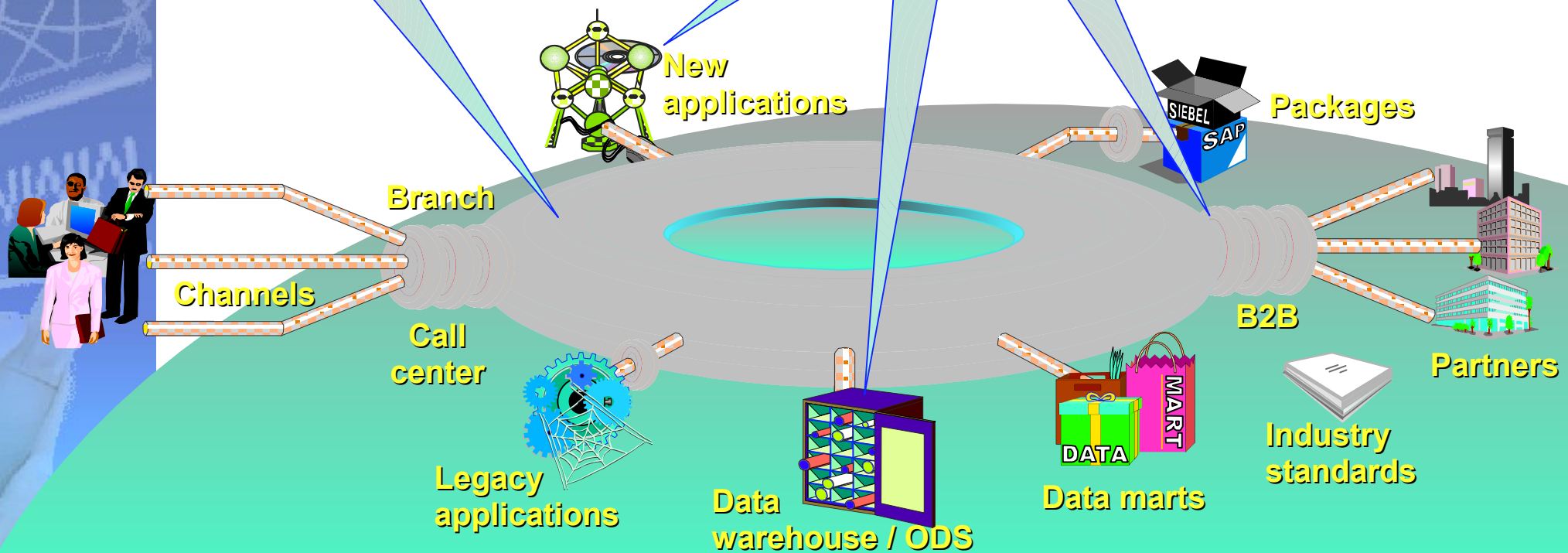


# @ A model-based, integrated infrastructure can seamlessly interconnect systems and support long-term needs.

Individual connections would be a development and maintenance nightmare.

Ideally, we need a hub architecture for all application intercommunication...

...based on interface standards to allow communication between disparate applications. Internally and externally.



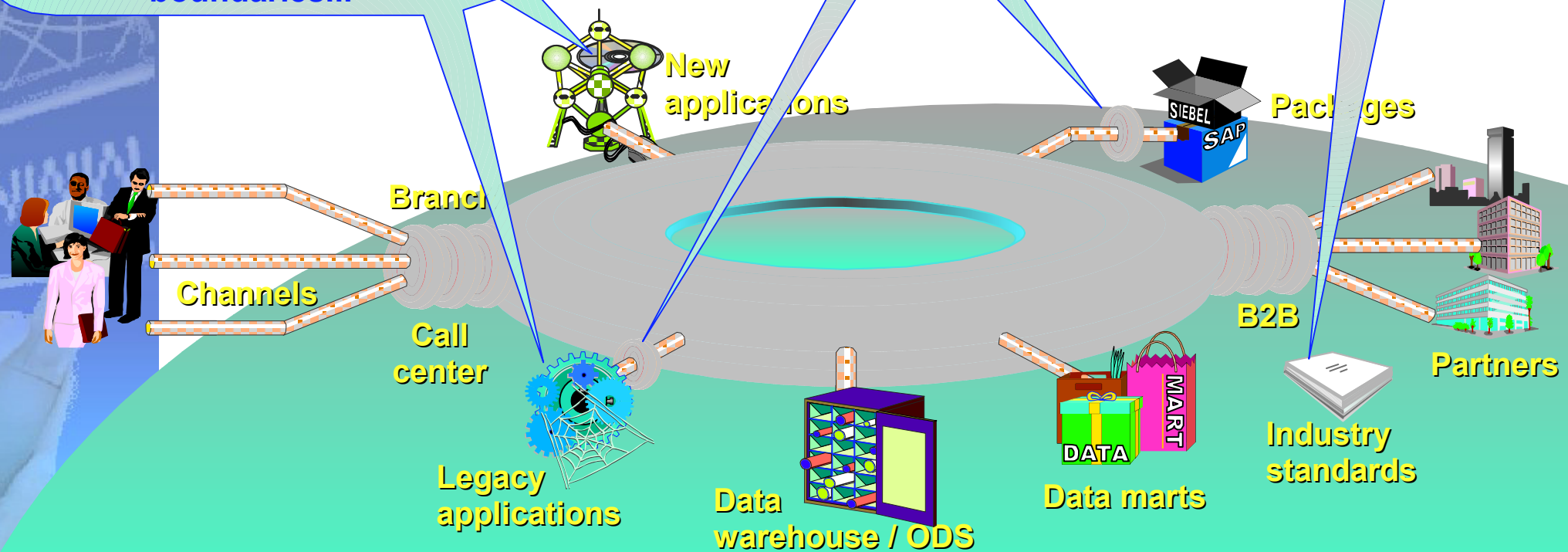
# @ A model-based, integrated infrastructure can seamlessly interconnect systems and support long-term needs.

And we need common semantics between internal applications, and with partner systems.

Data and component standards allow clear definition of existing and new application boundaries...

...and adapters facilitate integration of packaged and legacy applications, ...

...and give us a common basis for B2B using industry standards.





## The management meeting continues...

This new Loans Processing approach will require us to interconnect our systems in new ways. Doing this one-by-one would be costly and time-consuming. We need an integrated approach based on a common understanding of the business needs.  
A model...

Yes...  
But models take YEARS to build!

I read in a finance magazine that IBM have pre-built **Business Models** that can be easily and rapidly customized to our needs.



# @ Domain models provide a comprehensive foundation for integrating business and technology.

**Information      Component      Process**

*Aspects of representation*

**Common Business Terminology**

*Levels of detail*

**Common  
Business  
Data Model**

**Common  
Business  
Object Model**

**Common  
Business  
Process Model**

**Data  
Models**

**Interface  
Design  
Models**

**Process  
Templates**

**Databases:  
ODS /  
Data Warehouse**

**Messages and  
Interfaces:  
XML, Java**

**Process  
Flows**

**Business  
Integration  
View**



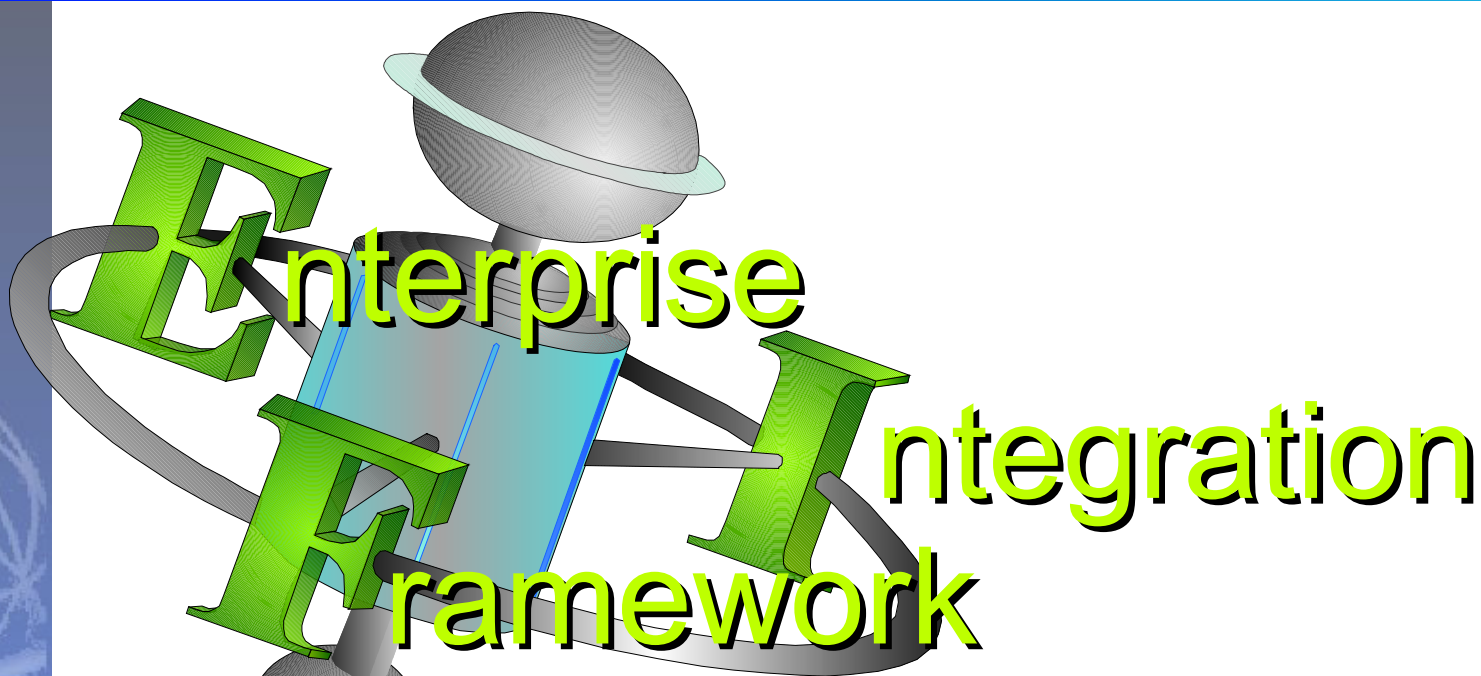
**Design  
View**



**Implementation  
View**



@ The Enterprise Integration Framework is expressed through industry-specific business models.

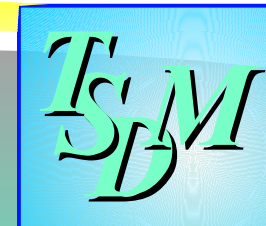


Insurance  
Application  
Architecture



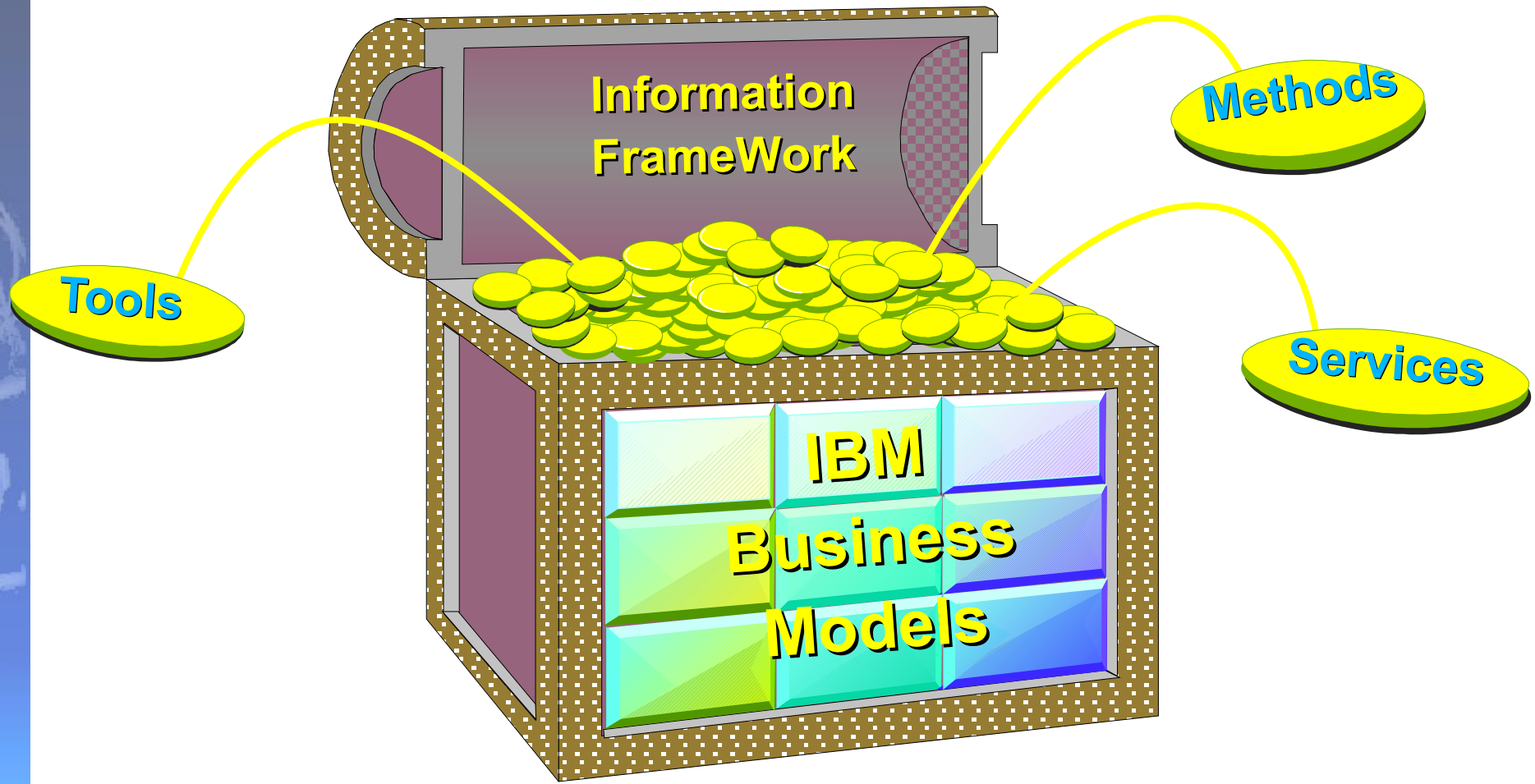
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Finance



Telco

@ Together with tools, methods and services, these models comprise IBM's Information FrameWork.





# At the next management meeting...

I've investigated the Information FrameWork. It will allow us to move forward quickly based on IBM Business Models. We need to engage IBM.

I agree ...  
But we also need to position ourselves for future growth and change.

Business Models also provide the ideal basis for managing change - in both business and technology





# @ Business Discovery investigates and formally describes both the "as-is" and "to-be" situations in three steps.

➤ The Business Discovery process has three phases, each building on the work of the preceding one.

1. **Process modeling**
  - Optimum process
  - Current processes
  - Streamlining and automation
2. **Information modeling**
  - Current information
  - Information needs
3. **Component modeling**
  - Existing systems
  - New components and interfaces

Business Discovery steps may follow a different order in other projects.



# @ The Business Discovery engagement (1): Analyze today's operations, and how to improve them...

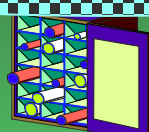
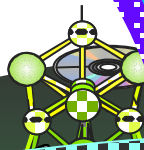
- Process models allow us to understand what our optimum process should be, existing procedures and where they fail, and so on...
- We define improvements for new needs and eliminate bottlenecks.
- We identify new triggers and thus ensure a reliable end-to-end process.

This allows automated agents to perform simple tasks with clients when we are closed. We expect a 10% increase in sales of simple loan products as well as better client satisfaction.

Customization

Process Foundation

Common Business Process Model



# @ The Business Discovery engagement (2): Understand the information currently in use and what is needed...

- Data models allow us to find and understand data in existing systems, identify potential duplication, etc.
- Then, we can map it to new needs, decide what new data is needed and figure out how to link it all together.

With an integrated view of the customer, we can increase cross-selling of loans by some 15%. And reduce risk at the same time by knowing all the details of the customer's accounts.

Customization

Process Foundation

Data Foundation

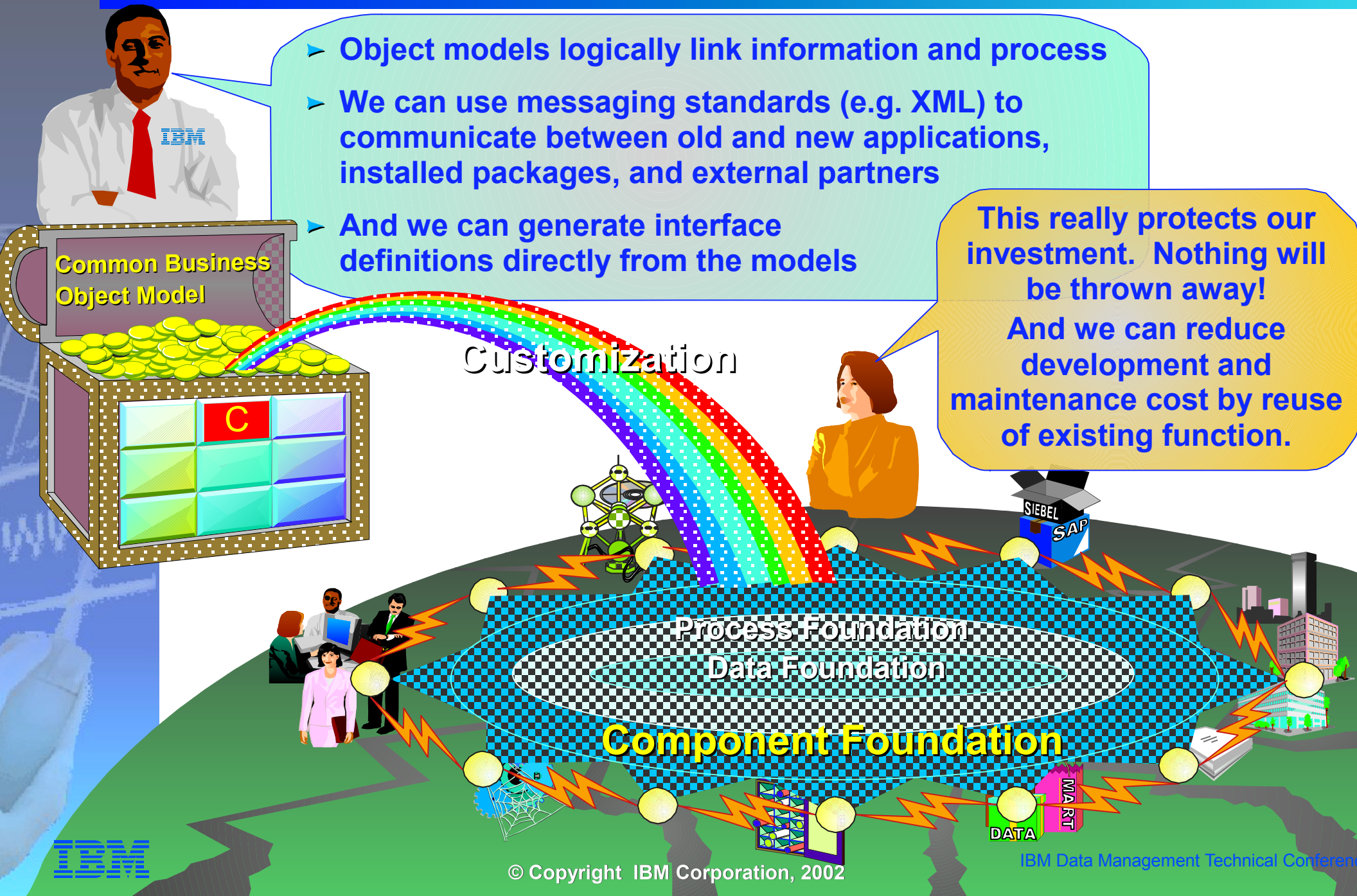
Common Business Data Model

# @ The Business Discovery engagement (3):

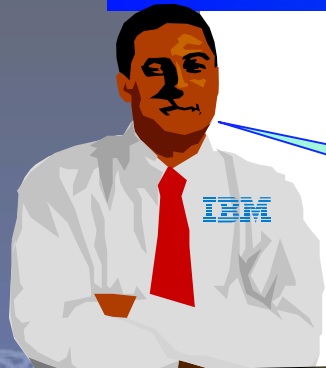
Finally, identify the components that link processes and information.

- Object models logically link information and process
- We can use messaging standards (e.g. XML) to communicate between old and new applications, installed packages, and external partners
- And we can generate interface definitions directly from the models

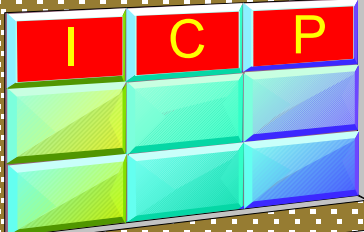
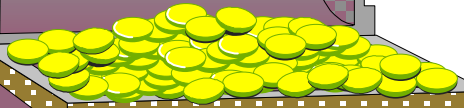
This really protects our investment. Nothing will be thrown away!  
And we can reduce development and maintenance cost by reuse of existing function.



# @ The Information FrameWork is the foundation for integration and future growth.



Common Business Models

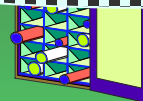
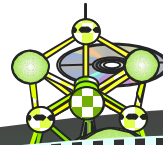


- Integrated business models provide a consistent framework for analysis across information, component and process.
- IBM's models provide help to understand how these different viewpoints relate (or map) to each other.
- We now have a common understanding of the business we are trying to support and how it needs to grow - from all aspects.

Information FrameWork

=

Information + Component + Process



# @ Reviewing the outcome of the Business Discovery project...

We are now ready to build the new e-business Loans Processing application!

We also better understand:

- ✓ how the existing IT systems support our business,
- ✓ how they can grow,
- ✓ and what needs improvement...

Fine, but how can we measure the resulting new business? And manage risk?

We already know the measurement needs and can easily link the new system to our data warehouse. The new integrated view of customer will allow us to see any exposures .

We have a good foundation now...  
Let's build it!

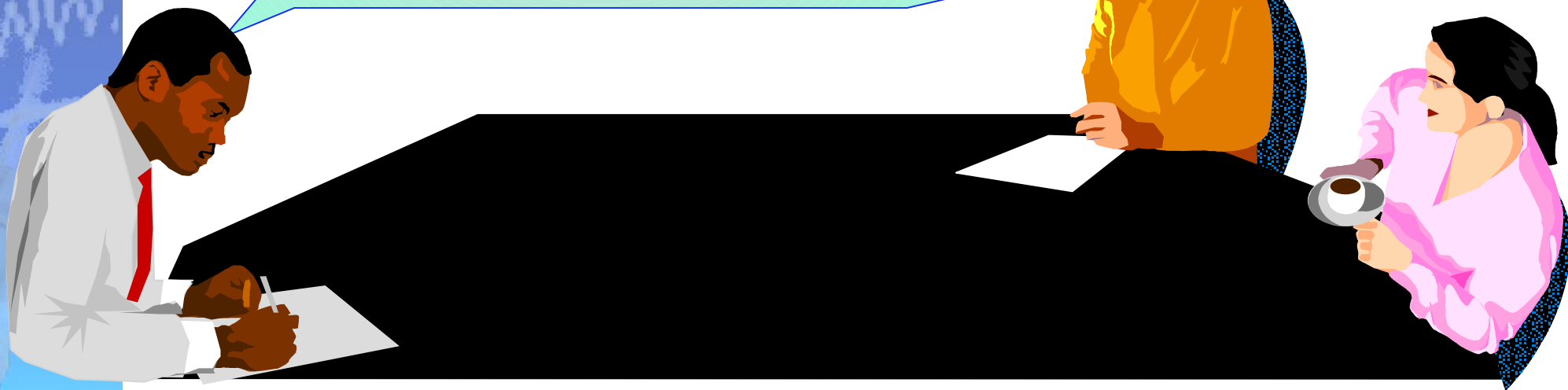


# @ The implementation phase builds naturally from what was done in Business Discovery.

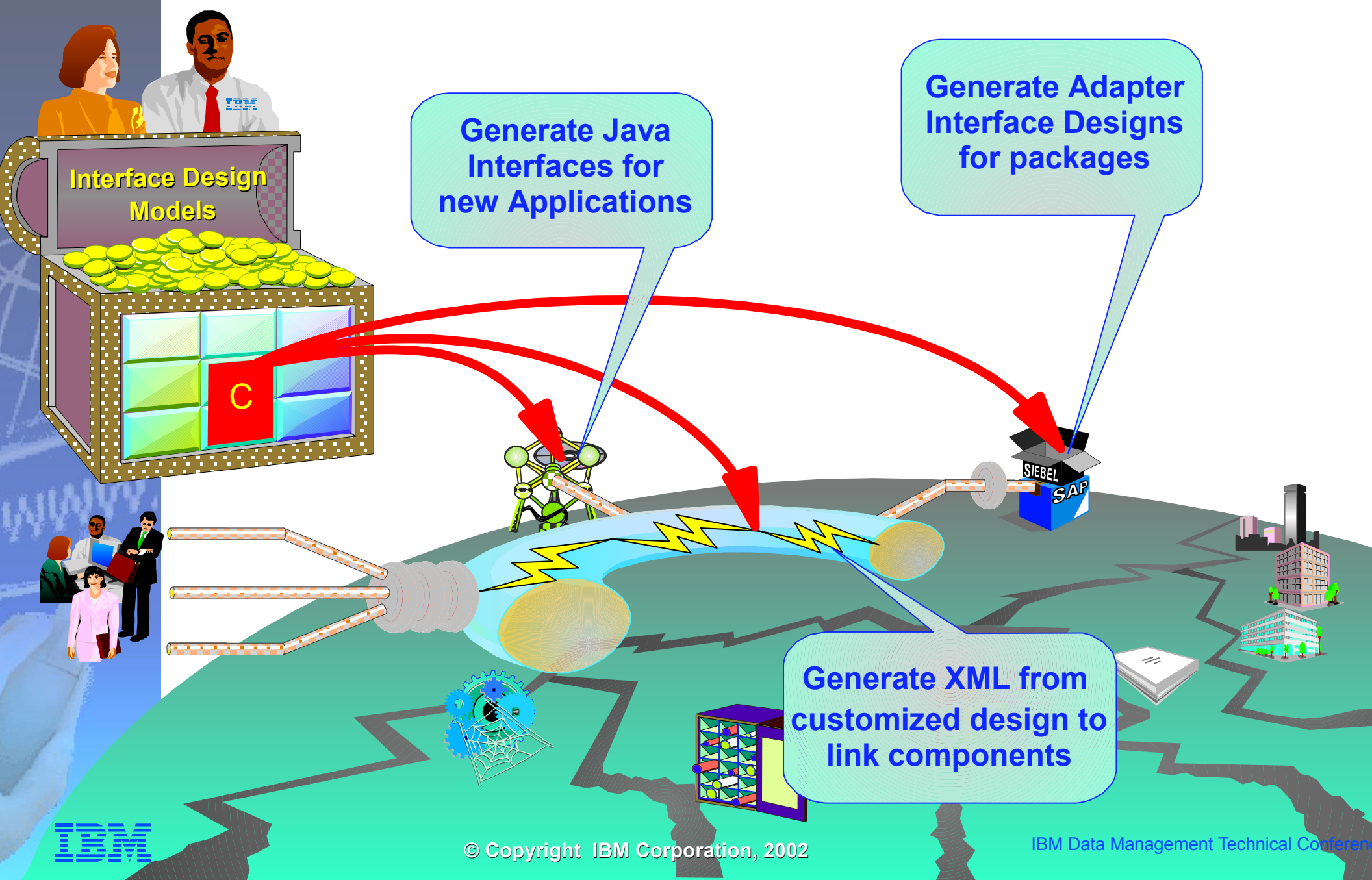
► Implementation is also linked to the three aspects of representation.

1. **Component design**
  - Focusing on the Web application
  - Interface design
2. **Information design**
  - First for the Web application
  - Then for the Warehouse and Marts
3. **Process design**
  - Order of steps
  - Interaction with partners

Implementation is actually cyclical and steps may follow a different order in other projects.



# @ Models support the transition from Business specs. to an implemented design of specific components.

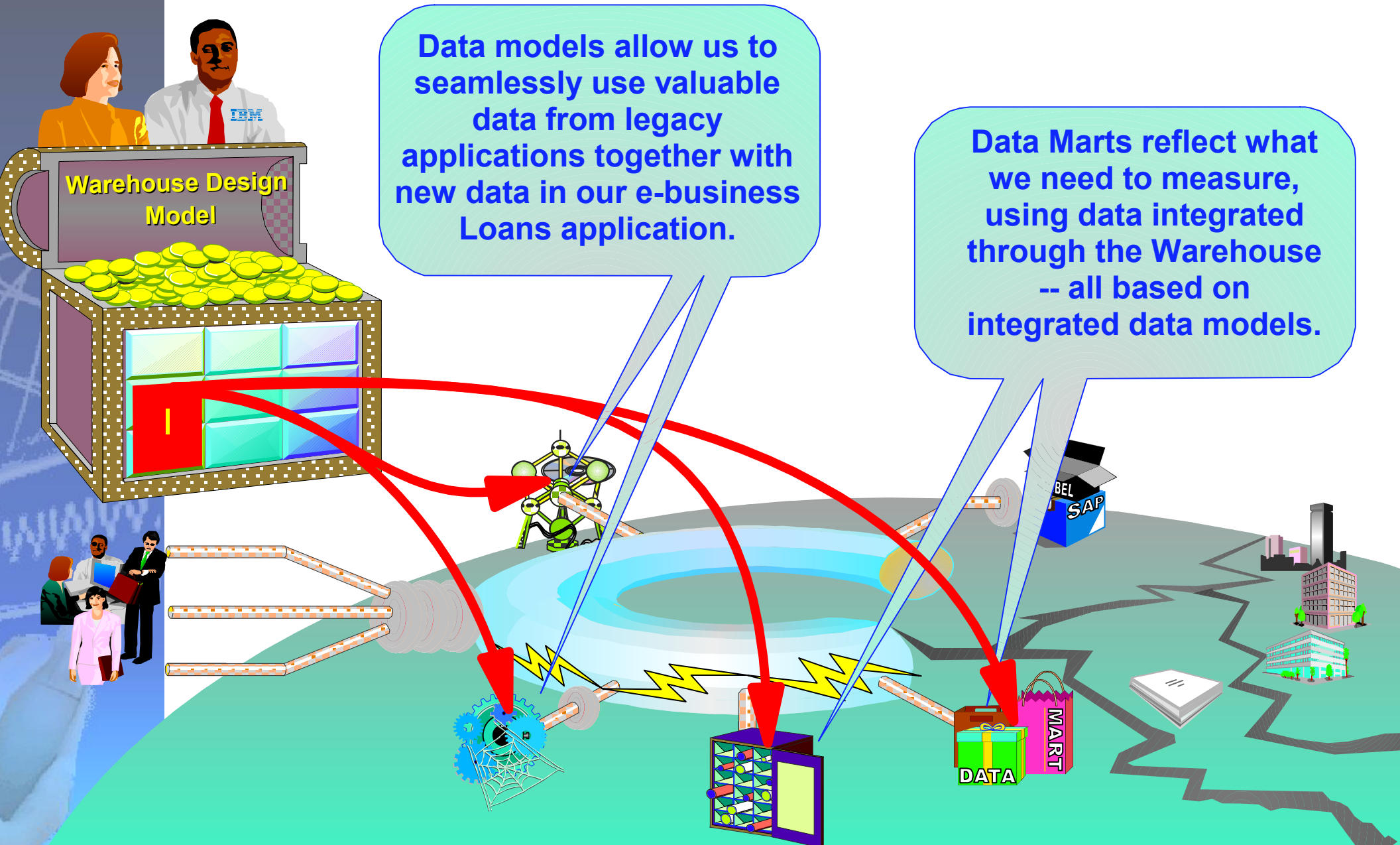




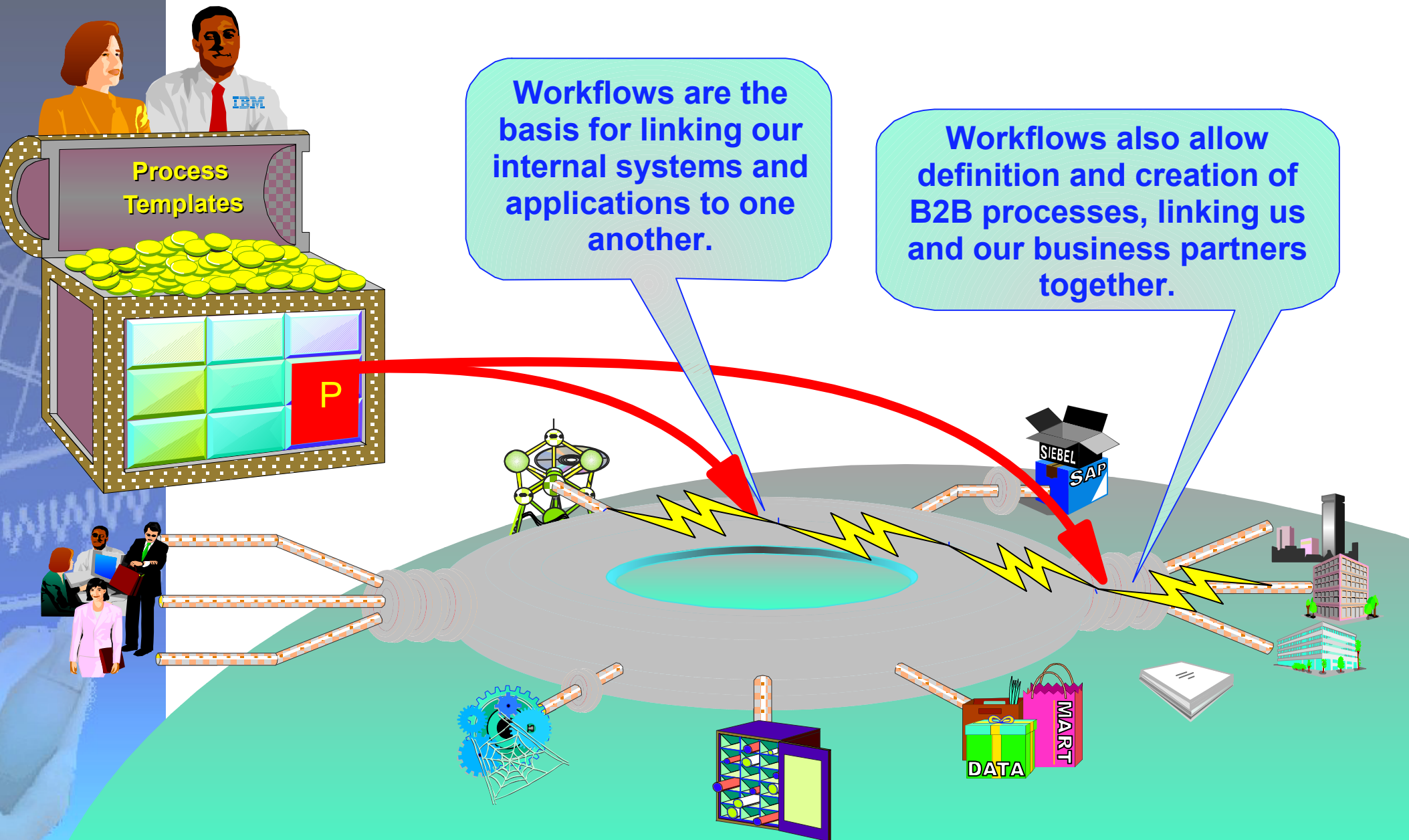
# @ The information representation supports the design of integrated data source systems, warehouses and marts.

Data models allow us to seamlessly use valuable data from legacy applications together with new data in our e-business Loans application.

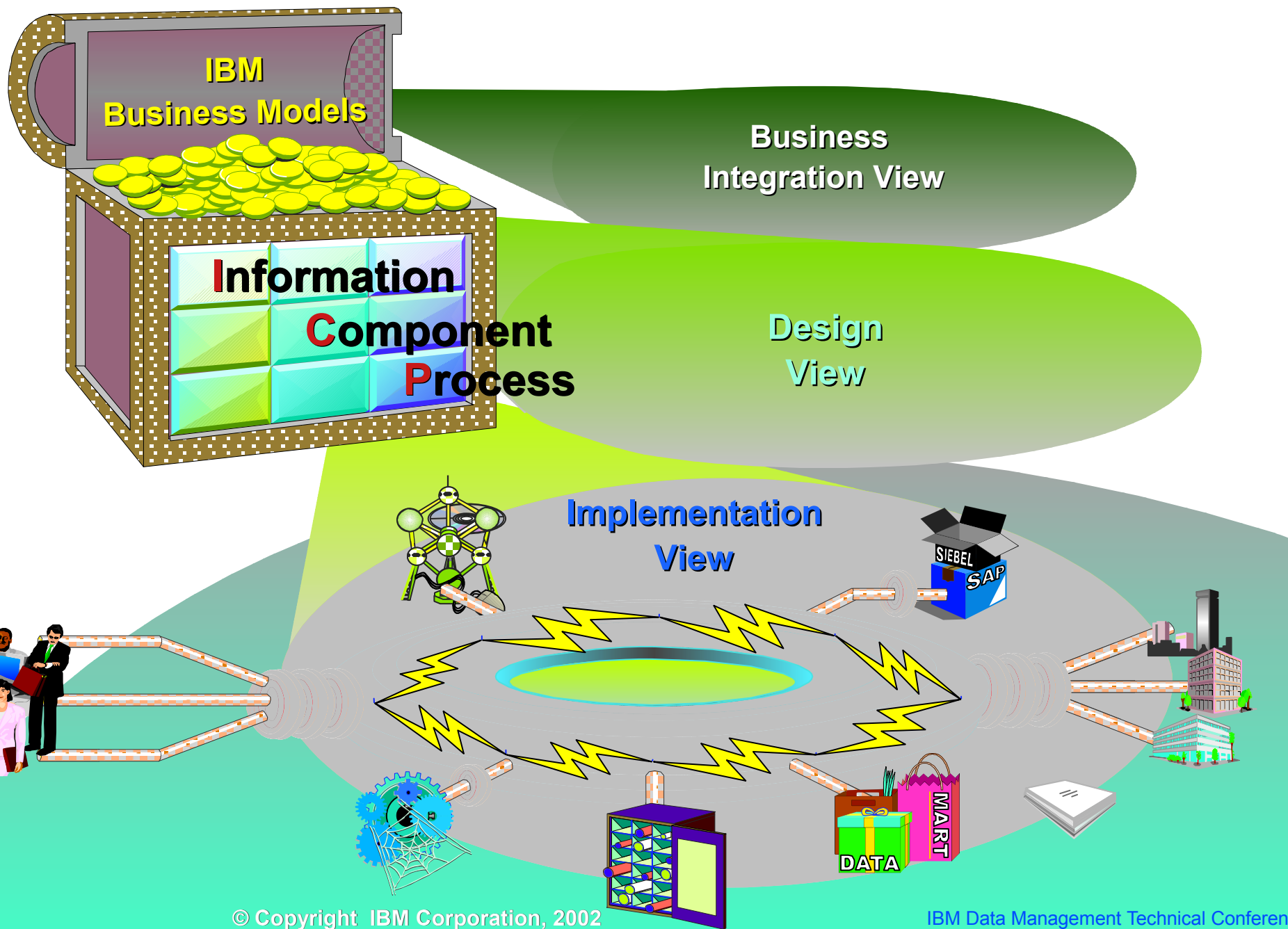
Data Marts reflect what we need to measure, using data integrated through the Warehouse -- all based on integrated data models.



# @ Process design work completes the hub, linking internal apps. together and integrating them with external systems.



@ Now all the systems, internally and externally, can fully inter-operate.





## At the project review meeting ...

The project is finished!  
It was a very complex project, but thanks to IBM's Information FrameWork, we are largely on schedule!

This is a first!  
And it seems you are close to budget as well...

Ensuring delivery of such complex projects has to be one of the key benefits of using the IBM Business Models.

And we will see ongoing savings in development and maintenance costs.

How is the new system working?



# @ The integrated system in action ...

## Timely and appropriate loan application processing.

Saturday 10 am:

- Fred sees the motorcycle of his dreams, but the seller needs a decision today!

What a beauty!  
But I'd need a loan to buy it. I think my bank would loan me \$6,000, but how can I get approval over the weekend?

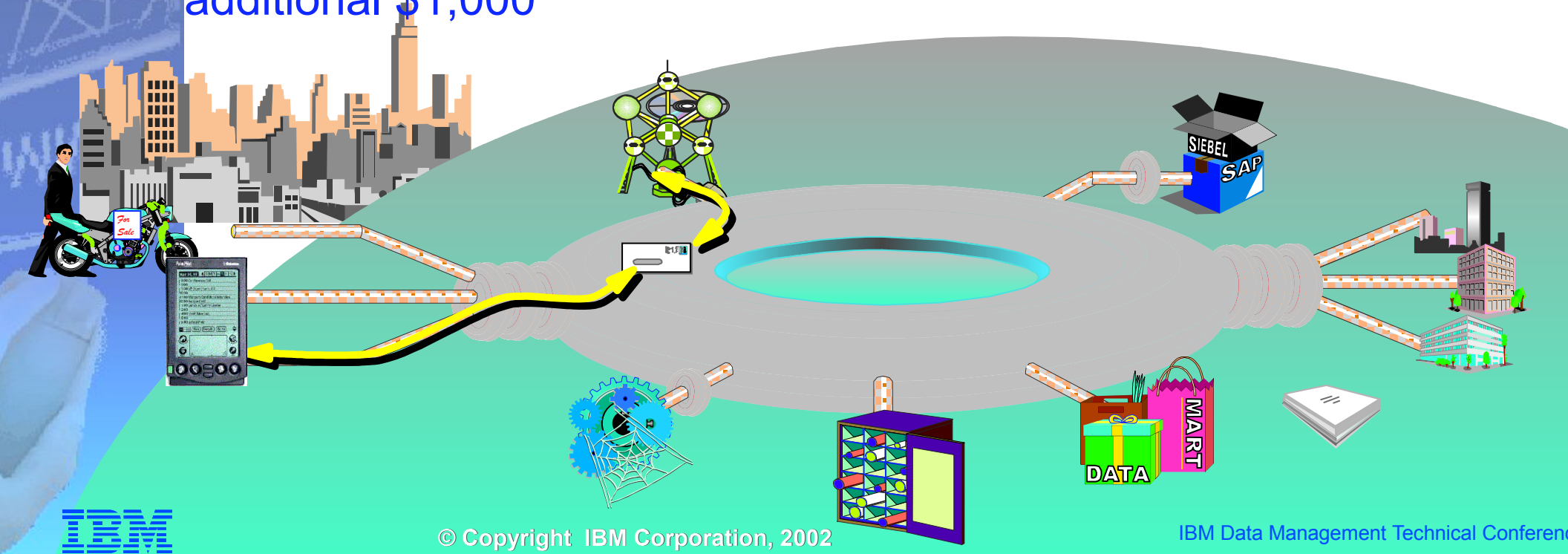
But, wait a minute... didn't my bank just announce a PDA loan service?



# @ The integrated system in action (1): Immediate access for customers

Saturday 10:02 am:

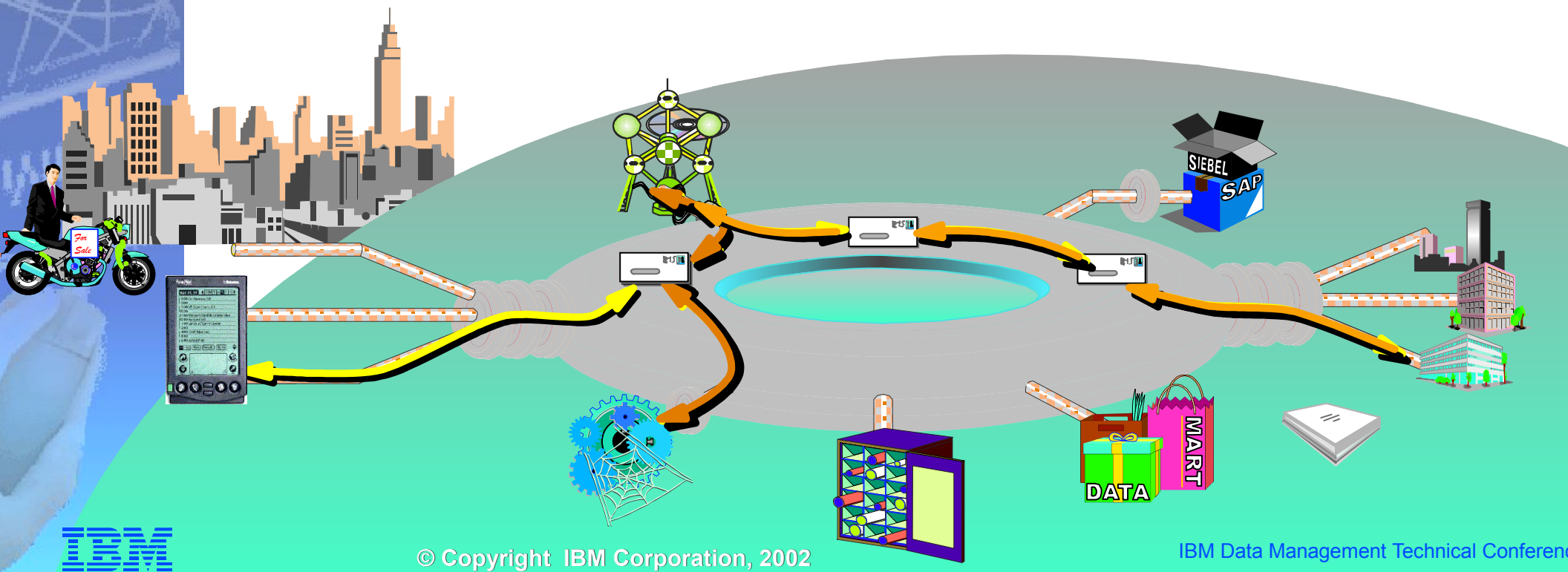
- Fred surfs to the new PDA website and finds the pre-approved personal loan application form
- He enters the loan details, but it is \$1,000 over the pre-approved limit
- His request is swiftly acknowledged by the new PDA Web App - and is told to await a message within 30 minutes regarding the additional \$1,000



# @ The integrated system in action (2): Immediate and appropriate action and response

Saturday 10:05 - 10:21 am:

- Fred's current details are retrieved from the legacy system
- The details are passed to the credit checking agency, which confirms that Fred is creditworthy up to \$10,000
- Having checked his full history in the legacy system, the Web app contacts Fred's PDA and offers him a loan of up to \$8,500
- On consideration, Fred asks for a loan of \$7,000



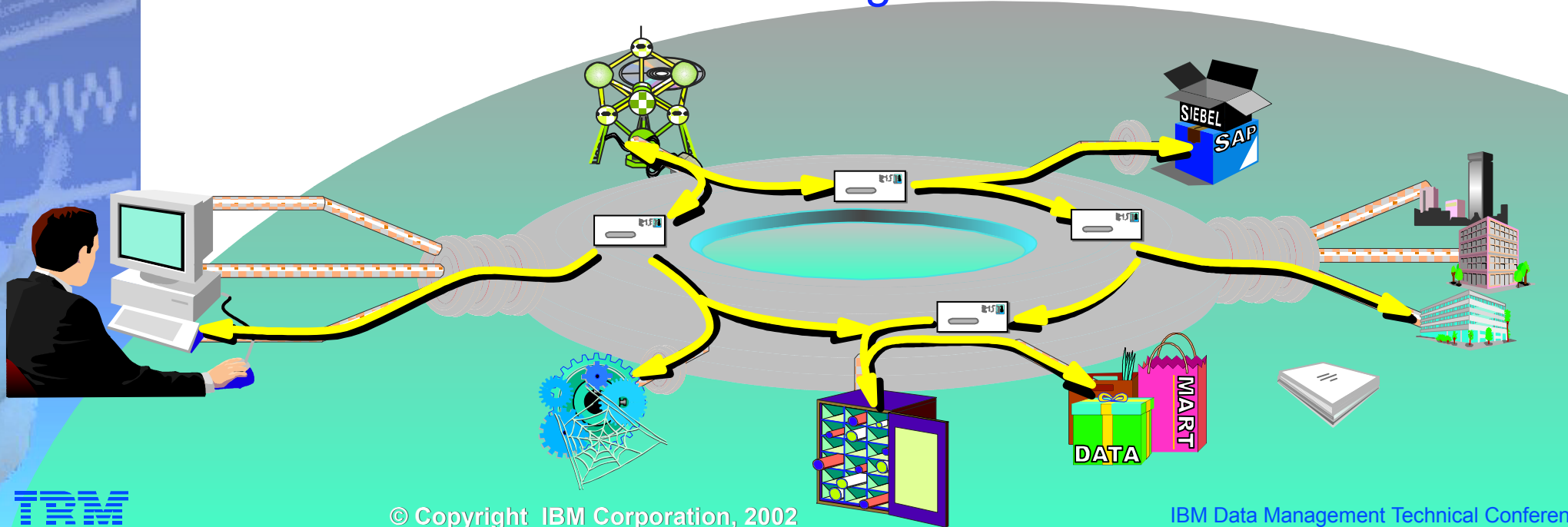
# @ The integrated system in action (3): Fully integrated business-to-business operations

Sunday 3:32 am

- Details of the loan are posted to SAP Financials and the money transferred to his checking account
- The credit agency is also informed
- The Data Warehouse and Cross Selling Data Mart are updated, ready for the bank staff on Monday morning

Sunday 10:43 am

- Fred receives an e-mail confirming loan details for his records





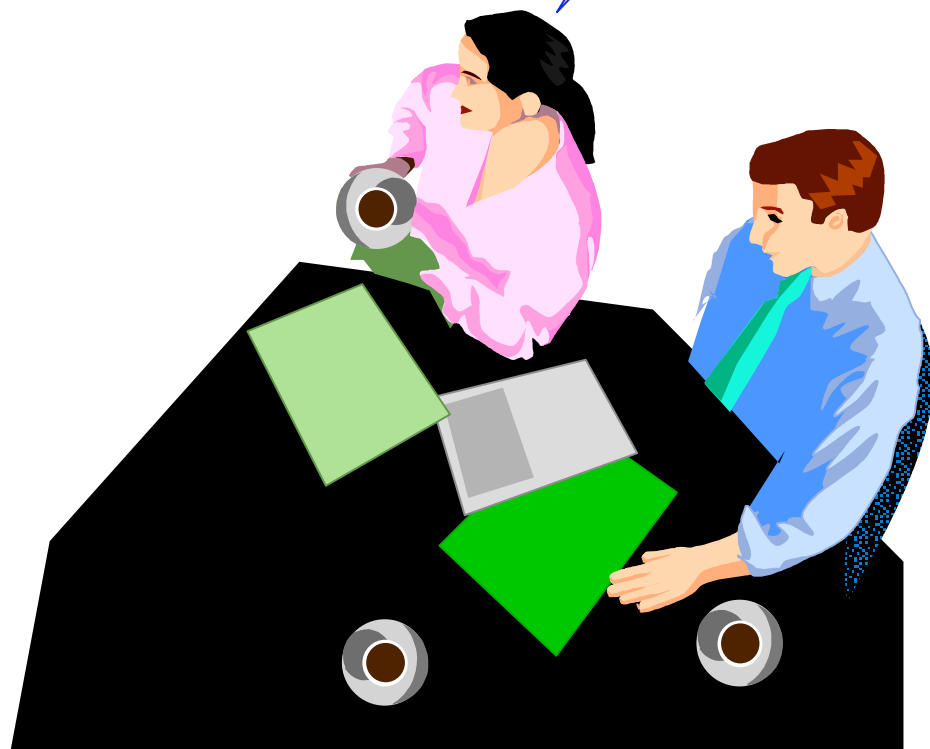


# At the next management meeting ...

With this new infrastructure, automated cross-selling has increased by 128%.  
Manual exception-handling is way down and customers are happy.



And the auditors are satisfied with our risk management!



# @ IBM's Domain / Business Models enable future growth through business and technological integration.

**Integrated, enterprise-wide content models**

★ highly detailed, readily customized and extensible

**Foundation for information integration**

★ from data warehousing to database federation

**Basis for application integration**

★ messaging, interfacing

**Enabling process integration**

★ workflow, process reengineering

