Business Process Management: The Third Wave

Howard Smith, CTO, Author and co-founder BPMI.org
hsmith23@csc.com

British Computer Society, September 2005
Ten years on, CSC has a new process agenda
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<td>Incremental</td>
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<td>BPMS</td>
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<td>Sharing processes</td>
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<td>Distributed processes</td>
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Fifty stories

I am the foundation of all business
I am the source of all prosperity
I am the parent of genius
I am the salt that gives life its savour
I am the foundation of every fortune
I do more to advance youth than parents, be they never so wealthy
I must be loved before I can bestow my greatest blessings, and achieve my greatest ends
Loved I can make life sweet, purposeful and fruitful
I am represented in the most limited savings, the largest body of investments
All progress springs from me

What am I?
Value = invention + scale
1900 - Frederick W. Taylor

Carl Barth
1950 - W. Edwards Deming

Walter Shewhart
Tools = productivity + complexity buster

Can a person extract the cube root of 9834752345624563476?

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 years ago</td>
<td>Nobody</td>
</tr>
<tr>
<td>500 years ago</td>
<td>Only a genius</td>
</tr>
<tr>
<td>50 years ago</td>
<td>A long and difficult calculation</td>
</tr>
<tr>
<td>Today</td>
<td>Use a calculator, push a button</td>
</tr>
</tbody>
</table>
Something’s going on

“Attention management! If you find any employee reading this book [BPM3] get them into reality training immediately, else they may unintentionally ruin your business.”
Process is back and people have memories

No wonder people are petrified

• Doesn’t that mean “Downsizing”!
• Now it comes with power tools

"Abandon long established procedures … toss aside old systems … go back to the beginning … throw away and dismantle the old … guard against assumptions … take nothing for granted … reinvent anew … abandon the familiar … seek the outrageous … turn the organization upside down … accept radical change … make waves … shatter assumptions.” Hammer and Champy, *Reengineering the Corporation*, 1993

BPM Definition
A contradiction at work

1. Find an alternative way to obtain (Productivity) that offers the following: provides or enhances (Resources freed for value added tasks), does not cause (Unemployment).

2. Try to resolve the following contradiction: The useful factor (Productivity) should be in place in order to provide or enhance (Resources freed for value added tasks), and should not exist in order to avoid (Unemployment).

3. Find an alternative way to obtain (Resources freed for value added tasks) that does not require (Productivity).

4. Consider replacing the entire system with an alternative one that will provide (Resources freed for value added tasks).

5. Find a way to eliminate, reduce, or prevent (Unemployment) under the conditions of (Productivity).
A very British tragicomedy of the late ’70s
Computers: glorified adding machines?

“Don’t let that Mr. Skinner hear you say that. He says a computer is an instrument of the imagination. He says that with another computer, me and Miss Glazier he could run Credit and Settlement single-handed.”

– Miss Prothero, from Alan Bennett’s, Office Suite
1978  
*Office Suite* first performed as a television play and transmitted by London Weekend Television

1979  
“Where there is discord, may we bring harmony. Where there is error, may we bring truth. Where there is doubt, may we bring faith. And where there is despair, may we bring hope” – Acceptance speech

1980  
**UK steel strikes begin**

1981  
**Riots in Toxteth**

"Out of this collection of tools can be built virtually any office application system"

-Michael Hammer et al, MIT Office Automation Group, 1981

www.recordare.com/good/oa81.html
1981 ... And the first IBM PCs began to roll off the production lines

Unimaginable but for the process gurus ...

Arthur Scargill was elected president of the National Union of Mine Workers (NUM)
A decade of turmoil at work

- As the performance of public sector organizations came increasingly under the spotlight and was starkly compared to the new “best practices” of privately owned firms, the 1980s saw the biggest sell-off of publicly owned institutions in the history of the UK.
Does process de-skill work?

“Procedure you see, Doreen, can be a tyrant. It can also set you free”

– Doris, from Alan Bennett’s, Office Suite
2000 - The rise of knowledge work

- Objects did change the world
- Processes are going to change it again

Knowledge worker costs are now 50% of all corporate costs
Not call centre worker robots
“Knowledge” workers
Where Do You Want to Go Today?
Is Work Working?  
Is what you do valuable work? 
Does your work environment work? 

Process office? 
2005 

Workflow excels at automating administration … for the rest we need a PROCESS
90% of your working day?

- Electronic mail
- Word processor
- Presentation software
- Spreadsheet
- Database

A typical Fortune 500 firm

150,000 PCs
4000 servers
100M Mbytes RAM
20M Gbytes Hard disk
A process tool is needed

Work with processes and work in processes
Who remembers these?

Tacky cardboard sleeve

When was the last time you used one?
We still draw them, what’s stopping us using them?
Process work is pervasive but **terminology** varies

- G2000 organizations are almost universally embarking on multiple process improvement exercises to increase organizational efficiency or effectiveness
- These efforts go by many names, including industrial engineering, ISO certification, Six Sigma, Sarbanes Oxley, enterprise business architecture (EBA), business process improvement (BPI), business process re-engineering (BPR), Audit and Compliance, Rummler-Brache, Integrated Definition Function Modeling (IDFM) and Lean Thinking, to name a few

Process work is pervasive but **semantics** varies

- Entity relationship diagrams
- ANSI standard flowcharts
- Process models, various
- Data flow diagrams
- Unified Modeling Language (UML/MDA) diagrams (activity, class, etc.)
- Catalyst, LOVEM
- Network diagrams
- CRUD (create, read, update, and delete) matrices
- IDEF charts (0 through 9)
- EPCs (event chains)
…. as simple and as effective as a spreadsheet
Useful process tools mandate diverse process
The process lifecycle

- Strategy
- Discover
  - Business Process Execution
    - Design
    - Deploy
      - Execute
      - Interact
      - Monitor
      - Control
    - Analyze
- Results
  - Business Process Optimization
Reengineering

Change disruptor

IT implementation

Requirements definition

Reengineering gap
(Business-IT divide)

Operational utilization

Business Process Management

Process modeling

Business-IT alignment

Adaptation enabler

Operational utilization

Process time-to-production advantage
Process improvement through serial discrete phases

- Process discovery
- Process design
- Process deployment
- Process operations
- Process analysis

Current technology

Continuous parallel process management

- Process discovery
- Process design
- Process deployment
- Process operations
- Process analysis

Process management technology
The connection to reengineering

CSC 1993 + Drilling = BPM Definition

CSC 2003

BPM Definition
Fast forward Post-ERP
To BPML and BPMS
1999 to 2003
“Pi was not so much in the sky, but in the air …”
The inspiration of SWAP

Ismael Ghalimi wrote:

Hi,

I'm trying to get a copy of the SWAP specification but it appears that the URL mentioned on your paper is not responding:

http://www.ietf.org/internet-drafts/draft-swenson-swap-prot-00.txt

Could you send me a copy of it?

Best regards

ig.

Ismael Ghalimi  ghalimi@exoffice.com
CEO  http://www.exoffice.com
Exoffice Technologies, Inc.  Tel: 650-259-9796
The ExoLab Company  Fax: 603-719-9409
Towards a process virtual machine

- Point to point (custom)
- Messaging middleware
- Integration brokers
- Enterprise application integration
- Continually evolving
- Data replication
- CO M COBRA
- TP monitor
- Workflow

Source: CSC EAI Practice
Distributed concurrent processing can be unified
Learning from the past: E F Codd

- Large data banks must be protected from having to know how the data is organised in the machine (the internal representation).

- Activities of users and most application programs should remain unaffected when the internal representation of data is changed.

- Changes in data representation will often be needed as a result of changes in query, update, and report traffic and natural growth in the types of stored information.

- A model based on $n$-ary relations, a normal form for data base relations, and the concept of a universal data sub language are introduced.

- Three of the principal kinds of data dependencies which still need to be removed from existing systems: ordering dependence, indexing dependence, and access path dependence.
When complexity mounts and becomes unmanageable, it’s time for action
How business people think, really ...
The power of unification

Fusion of procedural, functional, and rule-based programming metaphors
Technologies have different “first class” citizens

EDI - Business element
XML – Tag, Markup
Cobol - Report
APL - Equation
ASN.1 - Field
C - Function, Pointer
Perl - String
Lisp - List
RDBMS – Tuple, Procedure
Java (& Smalltalk, Simula) - Object
Workflow – Document, Resource
EAI – API, message

BPMS - Process
Business Process Management Initiative (BPML.org)
Process unifies computation and communication
“For over two decades the Process Calculus community has sought to combine two things: the way you define and analyze mobile distributed processes and the way you program them. We believe we’ve found the basic maths to meet this challenge, and it is heartening to hear that it is being applied to the management and automation of a company’s most basic economic assets, its core processes …”

Robin Milner, Professor of Computer Science, Cambridge University, UK

— ACM Turing Award Winner, 1991
Process Calculus

... is a decreasing sequence of relations.

Claim is a consequence of the fact that the transition relations

\[ \sim_\omega Q \iff P \sim Q. \]

from the definitions that \( P \sim Q \) implies \( P \sim_\omega Q. \)

\( \sim_\omega Q \) implies \( P \sim Q \) by establishing that \( \sim_\omega \) is a bisimulation. \( Q \) and \( P \stackrel{\alpha}{\rightarrow} P' \). Then for each \( n < \omega \) there is \( Q_n \) such that

Since \( \stackrel{\alpha}{\rightarrow} \) is image-finite, there is \( Q' \) such that \( Q \stackrel{\alpha}{\rightarrow} Q' \) and

tinely many \( n \). We deduce that \( Q' \sim_n P' \) for infinitely many \( n, P' \).

\[ \bigwedge_{i \in I} P_i \text{ abbreviates } P_{i_1} + \cdots + P_{i_r}, \text{ where } I = \{i_1, \ldots, i_r\}. \]

uppose that \( n \geq 0 \) and \( P \not\sim_n Q. \) Then there is a summation \( \Sigma \not\sim (P, Q) \) and any fresh name \( s, \)

\[ (\nu \tilde{s})(P | (M + s)) \not\sim (\nu \tilde{s})(Q | (M + s)). \]

ition on \( n. \) For \( n = 0 \) there is nothing to prove, so suppose that \( \alpha \) and \( P' \) such that \( P \stackrel{\alpha}{\rightarrow} P' \) but \( P' \not\sim_{n-1} Q' \) for all \( Q' \) (or vice versa, when the argument is the same). Since \( \{(Q' | Q \stackrel{\alpha}{\rightarrow} Q') \in \{Q_i | i \in I\} \) for some finite set \( I. \) Appearing hypothesis, for each \( i \in I \) let \( M_i \) be a summation such that for \( i \) and any fresh name \( t, \)

\[ (\nu \tilde{w})(P' | (M_i + t)) \not\sim (\nu \tilde{w})(Q_i | (M_i + t)). \quad (2.2) \]

cases, one for each form that \( \alpha \) can take. We give the details

Since \( A \sim B \) there is \( B' \) such that \( B \stackrel{\tau}{\rightarrow} B' \)

\( B' \perp_s \) does not hold. The only way this is po

\[ B' \overset{\text{def}}{=} (\nu \tilde{z})(Q_j | \Sigma_{i \in I} \tilde{z}). \]

for some \( j \in I. \) We now exploit the inducti

We have

\[ A' \leadsto A'' \overset{\text{def}}{=} (\nu \tilde{s})(P' | \tilde{s}). \]

Since \( A' \sim B' \) there is \( B'' \) such that \( B' \leadsto B'' \)

we must have \( B'' \perp_{s_j}. \) The only possibility is

\[ B'' \overset{\text{def}}{=} (\nu \tilde{z})(Q_j | \tilde{z}). \]

But \( A'' \not\sim B'' \) by (2.2), a contradiction. Hence

Case 2 Suppose that \( \alpha \) is \( \bar{x}y. \) Let \( s_i (i \in I) \) \n
\[ M \overset{\text{def}}{=} x(w). \Sigma_{i \in I} [w = y]. \]

The argument is then similar.

Case 3 Suppose that \( \alpha \) is \( \bar{x}(z). \) Suppose \( \text{fn}(P, t) \) and \( w \) be fresh names, and set

\[ M \overset{\text{def}}{=} x(w). \Sigma_{h=1}^{k} [w = a_h] t + \Sigma. \]

The argument is then similar. In this case, us we have

\[ A' \overset{\text{def}}{=} \nu \tilde{z} \nu \tilde{z} (P' | \Sigma_{h=1}^{k} [z = a_h] t + \Sigma \]

and not \( A' \perp_s \) and not \( A' \perp_t. \) It follows that the

from \( O \) performing a bound
## Process calculus primitives

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<th>Notation</th>
<th>Meaning</th>
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<td>π.P</td>
<td>sequencing</td>
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<tr>
<td>action</td>
<td>x(y)</td>
<td>communication</td>
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<tr>
<td>summation</td>
<td>a.P + b.Q</td>
<td>choice</td>
</tr>
<tr>
<td>recursion</td>
<td>P = {…}.P</td>
<td>repetition</td>
</tr>
<tr>
<td>replication</td>
<td>!P</td>
<td></td>
</tr>
<tr>
<td>composition</td>
<td>P</td>
<td>Q</td>
</tr>
<tr>
<td>restriction</td>
<td>(v x)P</td>
<td>encapsulation</td>
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</table>
Mobility

Mobility in the π-calculus:

- refers to dynamic change in the communication topology among processes
- is accomplished by a process acquiring and losing ports through which it may communicate with other processes
- is realized by transmitting the name of a port as the value of some communication between two processes allowing the transmitted port to be known to the receiving process

\[ A(x,y) = x.A(x,y) + \overline{y}(x).A'\]  
\[ A'(y) = \ldots \]

\[ B(y) = y(z).B'(y,z) \]
\[ B'(y,z) = \ldots \]

\[ (A \parallel B \parallel C) = (x.A(x,y) + \overline{y}(x).A'(y) \parallel y(z).B'(y,z) \parallel C) \]

\[ = (A'(y) \parallel \overline{z}.B'(y,z) \parallel C) \]

Semantics of Concurrent Communication

\[ \overline{xy}.0 \parallel x(u).\overline{x}\parallel y.0 \parallel \overline{xy}.0 \parallel x(u) \parallel \overline{x}\parallel z.0 \]
\[ 0 \parallel \overline{y}.0 \parallel \overline{x}.0 \parallel \overline{xy}.0 \parallel \overline{z}.0 \parallel 0 \]

A system can evolve in different ways depending on the interactions among processes.
Business Processes
20’th century big business ideas

- Moving production line to standardized work
- Statistical control of quality
- Lean production
- Theory of constraints
- Process focus
Last fifty years ... next fifty years ...

1952—At GE, Progress is our most important product.

2002—At GE, Process is our most important product.
Process are not new, but how best to manage them?

- **Six Sigma Quality:** The Road to Customer Impact
- **Key Strategy Initiatives:** QMI, NPI, OTR, SM, Productivity, Globalization
- **Change Acceleration Process:** Increase Success and Acceleration Change
- **Process Improvement:** Continuous Improvement, Reengineering
- **Productivity/Best Practices:** Looking Outside GE
- **Work-Out/Town Meetings:** Empowerment, Bureaucracy Busting

**Intensity**

- High
- Low

**Time**

- 1990
- BPM
Things we do with processes

- Automational, eliminating human labor from a process
- Informational, capturing process information for purposes of understanding
- Sequential, changing process sequence, or enabling parallelism
- Tracking, closely monitoring process status and participants
- Analytical, improving analysis of information and decision-making across processes
- Geographical, coordinating processes across distances
- Integrative, consolidating and integrating sub-processes and tasks
- Intellectual, the process of capturing and distributing intellectual assets
- Disintermediating, eliminating intermediaries from a process
- Computational, performing calculations as part of a distributed process
- Collaborative, allowing participants to manage sets of shared work processes
- Compositional, building new processes from elementary reusable process patterns
Ad Hoc Work

Customer
Process work

Case worker → Expert → Case worker

Case worker → Case team → Case worker

Customer
Sales as Chaos

Pursuit of all opportunities

Premature presentation of price

Miscommunication and information attenuation

“Team” decision-making

Customer confusion

Vanishing team members

Source: ProcessWorld
Sales as Process

1. Preliminary business case development (strategic relevance, financial opportunity, competitive position)
2. Customer requirements analysis
3. Customer solution development
4. Finalize contract
5. Finalize strategy and present proposal

Source: ProcessWorld
Processes

Marketing & Sales
- Account Management
- Market Research & Analysis
- Product/Brand Marketing
- Program Management
- Sales Cycle Management
- Installation Management
- Sales Commission Planning
- Customer Acquisition
- Collateral Fulfillment
- Sales Planning
- Distribution/VAR Management
- Corporate Communications
- Publicity Management

Human Resources
- Time & Expense Processing
- Payroll Processing
- Performance Management
- Recruitment
- Hiring / Orientation
- Succession Planning
- Benefits Administration
- Performance Review

Industry Specific Processes
- Commissions Processing
- Service Provisioning
- Site Survey & Solution Design
- Order Dispatch & Fulfillment
- Proposal Preparation
- Capacity Reservation
- Advance Planning & Scheduling
- Product Data Management
- Supply Chain Planning
- Order Management and Fulfillment
- Returns Management

Finance
- Customer / Product Profitability
- Credit Request / Authorization
- Financial Close / Consolidation
- Treasury / Cash Management
- Property Tracking / Accounting
- Internal Audit
- Collections
- Physical Inventory
- Check Request Processing
- Capital Expenditures
- Real Estate Management
- Asset Management

Operations
- Procurement
- Order Management
- Invoicing
- Shipping / Integrated Logistics
- Returns & Depot Repairs (RMA)
- Order Fulfillment
- Manufacturing
- Inventory Management
- Advance Planning & Scheduling
- Production Scheduling
- Demand Planning
- Capacity Planning
- Timekeeping / Reporting

Customer Relationship Management
- Service Agreement Management
- Internet Customer Service
- Warranty Management
- Call Center Service
- Problem/Resolution Management
- Customer Inquiry
- Sales Channel Management
- Inventory Management
- Service Fulfillment
Example objectives for managing processes

- Reduction in elapsed process time
- Higher productivity per person
- Improved quality/reduced errors/exceptions
- Simplification: reduced steps in processes
- Higher customer satisfaction
- Lower resource utilization/fewer people in processes
- Improved coordination and collaboration among teams, between departments, across geographies
- Reduced transaction cost
- Enabling customer access to internal processes
- Improved regulatory/legal compliance
- Flexibility in process/business agility
- Custom response/customized process
- Data/process integration between applications
- Reduced risk
- Reduced waste/scrap/nugatory work/duplication etc
Reengineering reengineering
Texas Instruments and the reengineering abyss

“Just one step back Jim and we can take the picture that tells the CEO we have finished the reengineering project”
From “As Is” lowest cost to “To Be” time to market, the challenge for Texas Instruments in the era of reengineering
“If I were you, I’d raise a P24D”

P24D: Request for IT-Project Prioritization Review

Smug grin of corp IT

9 Months Later

It's not what I need now
It's not what I asked for then
A reengineering tale of woe
The Dilemma at the heart of the Value of IT debate

As Is Processes
“Open a check account”

Symptoms
There is too much paper
The cycle time is too long
We have dissatisfied customers
The process is too labour intensive

Problem
Replace As Is Processes with New To Be Processes

Traditional Solution
Reengineering/ERP
Systems Development
Time, Cost, Resource
Go Back To Jail Card for New processes

Symptoms
Organizational stalemate
IT Costs, Time, Log Jams
Analysis Paralysis
Un-reconciled diverse needs

Real barriers

Solution
Integrate existing systems
Automate existing tasks
Provide a new user interface
Measure flows in tasks and activities
Escalate or re-direct tasks in exception cases
Organisational Change, Roles, Training

BPM

Instinctive reaction

How?

Napkin diagram
## Eras of process mapping and management

<table>
<thead>
<tr>
<th>Process Capabilities</th>
<th>One time events</th>
<th>On-going change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Re-engineering</td>
<td>ERP</td>
</tr>
<tr>
<td></td>
<td>Process as editable data</td>
<td>Process as executable code</td>
</tr>
<tr>
<td>Discovery</td>
<td>Group meeting</td>
<td>Manual analysis</td>
</tr>
<tr>
<td>Design and Re-design</td>
<td>White board</td>
<td>Binder</td>
</tr>
<tr>
<td>Deployment</td>
<td>Group meeting</td>
<td>Roll out application</td>
</tr>
<tr>
<td>Execution</td>
<td>New rules, procedures</td>
<td>Run application</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Only when clear failure</td>
<td>Difficult</td>
</tr>
<tr>
<td>Optimization</td>
<td>Wishful thinking</td>
<td>Difficult</td>
</tr>
<tr>
<td>Analysis</td>
<td>NA</td>
<td>Only internal</td>
</tr>
</tbody>
</table>
CIM for processes

Solution
Integrate existing systems
Automate existing tasks
Provide a new user interface
Measure flows in tasks and activities
Escalate or re-direct tasks in exception cases
Organisational Change, Roles, Training

A diagram, instead of
a reengineering and
systems development
project

It’s flowcharts! Thank goodness, I understand this!

...I can explicitly see the business process...

...processes replacing point-to-point interfaces...

...we can work together much faster and with flexibility

...we can reuse the systems investments we have made...

Directly deployed on a BPMS

Providing Business Process Management

I can understand what people around me are doing ...
IT: What are you doing?

BUSINESS: Modeling the business processes we need?

IT: Why are you doing that? Just specify the user interface and we’ll take care of the rest. No need for you to get involved in these details.

BUSINESS: But this is the first time we have been able to express requirements so they won’t get distorted when implemented.

IT: It won’t work, we cannot be responsible for the model you are creating, we will need to translate it into our architecture.

BUSINESS: In that case, goodbye.

Unleash the PROCESS MANAGEMENT POTENTIAL in everyone
Grok Process?
GROK

a Martian verb for a thorough understanding
Dear Sir/Madam,

Once again, if you use or install TV receiving equipment to receive or record television programme services, you are legally required to have a TV Licence. We have written to you twice recently and we still have no record of a response from you. If you need a TV Licence, you must buy one in the next few days, or you could soon find yourself facing prosecution and a fine.

Before I explain what is likely to happen next, I feel I must, as TV Licensing Enforcement Manager for your area, remind you of the following, since ignorance of the law will not be accepted by TV Licensing as an excuse:

- It is illegal to use or install any television receiving equipment, to receive or record television programme services, without a valid TV Licence. Such equipment includes TV receivers, video recorders, set-top boxes, computers with broadcast cards and other television receiving equipment.
- To do so is an offence that may result in prosecution and a fine of up to £1,000.

If you do not have a TV receiver, please write to us at the above address so that we can update our records. If you do this, we will contact you in due course.
We already grok data

“We have a database of everyone who does not have a TV licence.”
Merriam Webster on PROCESS

Progress, advance, in the process of time, something going on, proceeding, a natural phenomenon marked by gradual changes that lead toward a particular result, the process of growth, a natural continuing activity or function, life processes as breathing, a series of actions or operations conducing to an end, a continuous operation or treatment especially in manufacture, the whole course of proceedings in a legal action, to apply a special treatment, as in the course of manufacture, to subject to or handle through an established usually routine set of procedures, to process insurance claims, to subject to examination or analysis, computers process data, treated or made by a special process especially when involving synthesis or artificial modification, to move in a procession
“We have a PROCESS for everyone who does not have a TV licence that ends in a trip to court and a £1000 fine … Want to know where you are?”
The Power of PROCESS

Now that computers can process PROCESSes

I am being tracked

The spooks are closing in

It’s only a matter of time before I’m caught

They have a coordinated approach for finding me

They probably know already when and how I’ll be caught

Their method is foolproof, I will be found out
PROPER NOUN
“a noun that designates a particular being or thing, does not take a limiting modifier, and is usually capitalized in English”
Learning to ride a bike is also a PROCESS

A father can read to a child books that describe riding a bicycle, but it’s only when the child climbs onto the seat of a real bicycle that the groking really begins, scrapes and bruises included at first
Proper processes

PROCESS (P)

• Disaster/Insurance claim
• Life history/Health record
• Logistics/Lost parcel
• Support/Trouble ticket
• Goal/Project
• Emergency response/Incident
• Customer/Service request
• Procurement/Order
• Management/Initiative
• Farm animal certification/Tag
• Provisioning/Service
• On-boarding/Employee
• Publishing/Book
• Change Mgt/Change request
• Public health/Campaign
• Criminal/Case file
Processes are made of processes

- Patient
- Hospital
- Doctor
- Health authority
- Medical procedure
- Referral
- Medical record
- Administration
- Admission
- Community health
Examples of useful things processes can do

- Automate
- Inform
- Accelerate
- Sequence
- Track
- Distribute
- Parallel up
- Analyze
- Coordinate
- Integrate

- Capture
- Disseminate
- Instruct
- Compute
- Process
- Correlate
- Direct
- Sense
- Respond
- Monitor

- Predict
- Secure
- Delegate
- Record
- Expose
- Measure
- Agree
- Follow up
- Prompt
- Illuminate
Zachman defines process very narrowly

<table>
<thead>
<tr>
<th>The Zachman Framework</th>
<th>DATA</th>
<th>FUNCTION</th>
<th>NETWORK</th>
<th>PEOPLE</th>
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<td>List of business goals/strategies</td>
</tr>
<tr>
<td>Planner</td>
<td>Entity = Class of business thing</td>
<td>Function = Class of business process</td>
<td>Note = Major business location</td>
<td>Note = Major organizations</td>
<td>Time = Major business event</td>
<td>Ends/Means = Major business objective success factor</td>
</tr>
<tr>
<td>Owner</td>
<td>Ent = Business entity</td>
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<tr>
<td></td>
<td>Relationship</td>
<td>I/O = Business resources</td>
<td>Link = Business linkage</td>
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<td>Designer</td>
<td>Ent = Data entity</td>
<td>Proc = Application function</td>
<td>Node = I/S function Processor, Storage, etc.</td>
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<td>End = Structural assertion</td>
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<td>Presentation Architecture</td>
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<td>Rule Design</td>
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<tr>
<td>Builder</td>
<td>Ent = Segment/Table, etc.</td>
<td>Proc = Computer function</td>
<td>Node = Hardware/System software</td>
<td>People = User</td>
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<td>End = Condition</td>
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<td>Actual Business Schedule</td>
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Perspectives (Rows)
I define process very broadly

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<th>FUNCTION (How Process)</th>
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MDA won’t work for BPM

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<td>Control Structure</td>
<td>Rule Design</td>
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</table>

Source OMG
The BPMS
The Next Fifty Years?
The jury is unanimous

- From 1992 to 2001, US companies spent over $2.7T on hardware, software, and services – IDC
- Research shows only a random correlation between IT spending per employee and return on shareholder equity – Strassman
- On average, only 7% of software functionality that was paid for is actually used – Gartner
- 85% of IT projects fail to meet objectives (with 32% being cancelled outright) – Gartner
- IT projects often suffer from a prolonged delay to realizing value, an average of 18 to 24 months from initiation to operations (usually only providing a one-time cost impact) – Standish Group
Process can be separated

Evolution of data centric applications

Early
- Embedded data
- Proprietary schema

Innovator
- Embedded data management
- Proprietary schema

Mature
- Separate database
- Standard data schema

Evolution of process centric applications

Early
- Embedded processes
- Proprietary schema

Innovator
- Embedded process management
- Proprietary schema

Mature
- Separate process management
- Standard process schema
The tipping point for BPMS

- **Hardware**
  - On this mainframe
  - On this database

- **Application**
  - Using ERP
  - On the network

- **Capability**
  - By managing my processes

- **Sharing**
  - Data (RDBMS)
  - Computing resources (Web Services)
  - Processes (BPMS)

- **Architecture**
  - Data-centric
  - Distributed computing
  - Process-centric
BPMS = CAD/CAM for processes

Design, Deploy, Execute, Interact, Operate, Optimize, Analyze
From packaged processes to packaged process management

Sales Campaign Management

Aerospace Industry

Chemicals Industry

Fashion Industry

Paint to Distributors

Pesticides to farmers

Bulk chemicals To wholesalers

Customer A

Customer B

Design the campaign
Deploy the campaign
Execute the campaign
Measure the campaign
Customize the campaign
Optimize the campaign

Sales Campaign Management

Customer Segment X
## Trends in enterprise applications

<table>
<thead>
<tr>
<th>Applications</th>
<th>MRP</th>
<th>ERP, CRM, SCM …</th>
<th>BPM, BPO, BPU …</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform</td>
<td>Mainframe</td>
<td>Midrange + Unix</td>
<td>Web services</td>
</tr>
<tr>
<td>Language</td>
<td>DL/1</td>
<td>SQL</td>
<td>BPML, BPQL</td>
</tr>
<tr>
<td>Sharing</td>
<td>Hierarchical data</td>
<td>Relational data</td>
<td>Process data</td>
</tr>
<tr>
<td>System</td>
<td>HDBMS</td>
<td>RDBMS</td>
<td>BPMS</td>
</tr>
</tbody>
</table>
BPMS applicability

The Middle-Out Approach

Business Analyst
(6σ Black Belt)

Process Designer

1M ABAP* Developers

3M PL/SQL Developers

8M VB Developers

Software Engineer
(OO Programmer)

100% complete, 80% appropriate

Source: BPML.org
Typical BPMS Stack

Business Driver

Supply Chain Strategy

Business Process Management

Tools For Business

Business Processes “To Be”

Business Process Management System

“As Is” Business Processes

Existing Business Infrastructure

Fast and responsive service

Production improvement
Transportation improvement
Logistics improvement
Demand improvement

Plan-to-produce
Trigger-to-Replenishment
Order-to-Cash
Demand-to-Fulfil
Build-to-Order

Enterprise resource planning
Warehouse, Manufacturing
Supply chain software
Financials
Computer Network

Process discovery
Process design
Process deployment
Process execution
Process operations
Process analysis
Process optimization

Lifecycle

End to end
Two key industry trends

Essentially the same but simpler APIs and more interoperable

Business processes very different – A change in kind

Web Services  BPMS

Data, Procedure, Interaction (Complex, non-interoperable)  Data, Procedure, Interaction (Complex, non-interoperable)
The IT industry battle for the BPMS

The enterprise applications marketplace

Growth through new applications

Several proprietary architectures

Create standards

Reinvigorate platform, reuse components

A handful of viable suppliers

Systems of Record

PLUS

Systems of Reference

A handful of viable suppliers

BPMS

Packaged applications

A few dominant suppliers

Thousand of viable suppliers

RDBMS
1980s
Data digitization
Data asset
- RDBMS
- Commodity op sys
- Unix
- Data mgt. platform

1990s
Data exploitation
Application asset
- ERP
- Commodity database
- Unix

2000s
Process digitization
Process asset
- BPMS
- WS
- Commodity services
- Processes mgt. platform
- Distributed apps

2000s
Process exploitation
Application asset
- ???
- BPMS
- WS
- Commodity BPMS
- Process centric apps
- Proc mgt platform

= symbiosis
Transitioning from the old to the new

Yesterday

- Apps
- App Server
- RDBMS

From now on

- Process manufacture tools & services
- Processes
- BPMS
Evolution of IT service delivery

**Trend**

- 1960: Computing Commercially Available
- 1980: IT Pervasive
- 2000: Process Digitization
- Vision: Process / Technology Convergence

**Client Requirement**

- 1960: Deploy Technology
- 1980: Manage / Optimize Technology
- 2000: Capture & Manage Processes
- Vision: Dynamic Business Reconfiguration

**Core Competencies**

- Systems Development
- Consulting/Systems Integration
- Outsourcing

**Business Optimization**

- Business Process Management
- Consulting/Systems Integration
- Outsourcing

- Business Process Management
- Consulting/Systems Integration
- Outsourcing

- Business Process Management
- Consulting/Systems Integration
- Systems Development

- Business Process Management
- Consulting/Systems Integration
- Systems Development

- Business Process Management
- Consulting/Systems Integration
- Systems Development
The Next Fifty Years of IT

“... In the past, IT has provided the systems part; but the potential for IT has moved on significantly in managing both elements of people and business systems. This orchestration of information manipulation and human contribution is what both the business and IT community refer to as business process management, which is made possible by **continuing major advances in IT.** The ability to design, execute and optimize processes in an inclusive loop, through the boardroom to IT and back again, means that for the first time, the business and IT can work from the same sheet at all points in the process lifecycle.”

-- Gillian Taylor, British American Tobacco
Through BPM, IT is expanding

<table>
<thead>
<tr>
<th>Business Infrastructure</th>
<th>Business Automation</th>
<th>Process Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Office environment – email, desktop, portals etc</td>
<td>• Data Processing, automation of existing ways of working</td>
<td>• Business Enabler</td>
</tr>
<tr>
<td>• Lowest cost source</td>
<td>• Standardization</td>
<td>• Translates business requirements into reality</td>
</tr>
<tr>
<td>• Enables business to communicate and share information</td>
<td>• Provides audit trail</td>
<td>• Enhances understanding</td>
</tr>
<tr>
<td></td>
<td>• Supports scaling of business</td>
<td>• Provides actionable feedback</td>
</tr>
<tr>
<td></td>
<td>• Reduces head count.</td>
<td>• Enables differentiation</td>
</tr>
<tr>
<td></td>
<td>• Provides management reporting</td>
<td></td>
</tr>
<tr>
<td>• Required by all</td>
<td>• Type of business determines need</td>
<td>• How the business develops, delivers and maintains market position</td>
</tr>
</tbody>
</table>

The next 50 years of IT

The last 50 years of IT
Multiple facets of the growing process reformation

Process is back in the boardroom “end to end work”

Individual process management initiatives

Chief Process Officer, VP of Process XYZ

Enterprise wide “integration hope” and WS-SOA hype

Emergence of the Corporate Process Centre of Excellence

Random “process” cowboys & mavericks

Enterprise wide process improvement initiatives “Six Sigma”

Enterprise Architecture BPM & Marketecture
Fifty stories

Questions