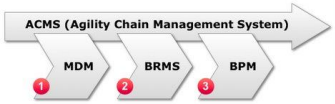
The targeted IS/IT foundation

- Business users demand a more transparent IS/IT system which means taking Ref/Master Data, Business Rules and Processes out of existing hard-coded software and ERP customs. The progressive reshaping of IS/IT is based on this re-appropriation of intangible IS assets strategy.
- The targeted IS/IT foundation is established through the use of three types of business repositories embodying IS Assets: Master Data Management (MDM), Business Rules Management (BRMS) and the well-known Business Process Management (BPM). Rather than an isolated or siloed implementation of each one, the targeted IS/IT foundation is based on a systemic integration chain to connect the MDM with the BRMS, and then with the BPM: "the quality of processes depends on the quality of rules; and this last one depends on data quality". In other words, it means that the strength of this chain is equal to its weakness link. A company cannot have a good command of its processes if she hasn't a good command of its business rules, and first of all its ref/master data.



Hard-coded system	✣ Duplication of data within rigid and scattered databases, spreadsheets effects, programming languages used by IT specialists. ✣ It means opaque to business users: IT audit trails available to IT specialists mainly, tunnel effect when using IT programming languages, lack of traceability between data, rules and processes.
Transparent system	✣ Use of business repositories to reduce hard-coded implementations either in bespoke software developments or in ERP customs. ✣ It means open to business users: ref/master data are governed through the MDM; business rules are authored and executed from the BRMS; and processes are managed with help from the BPM.

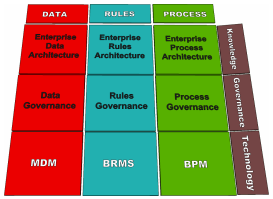
Business triggers to start the targeted IS/IT foundation

- **Ref/master data governance.** A company needs to regain the control of its ref/master data. The MDM is set up first, and in a second stage business rules applied to data validation are authored in the BRMS.
- **Processes implementation.** A company needs to deploy new processes or reshape existing ones. Rather than using an approach of hard-coding to implement rules and data used by the processes, the MDM and the BRMS come into play first, applied to the scope of data and rules consumed by the processes to deploy and/or reshape.
- **Enterprise Architecture (EA).** EA don't guarantee a good IS/IT Architecture: Zachman [(1)] is a taxonomy of concepts and models; TOGAF [(2)] is architecture agnostic. Therefore, companies have to define a targeted IS/IT architecture enforcing a better management of their IS Assets based on Data, Rules and Processes when deploying their EA programs.

(1) http://www.zachmaninternational.us - (2) http://www.opengroup.org

The three domains of assessment

- Each IS Asset (Data, Rules, Processes) is measured through three domains of assessment: Knowledge management, Governance functions and IT architecture. It means that the IS Rating Tool establishes a matrix with nine cells: 3 types of IS Assets x 3 assessment domains. For each cell of this matrix, a set of questions is provided to assess the IS Intrinsic value. About 100 questions are defined for the whole matrix, and answers are chosen within a scale of five levels from optimized to low. It means that the IS Rating Tool establishes about 500 measurement points to assess the whole IS Assets.



Knowledge management	✣ How data, rules and processes are documented? ✣ What are the modeling procedures used? ✣ E.g.: "you own a data model but is it a low-level description or a semantic model?"
Governance functions	✣ What are governance functions available to business users to manage IS Assets. Reminder: this part doesn't deal with the quality of the organization but the quality of the governance functions like: version management, permission management, authoring mechanisms, etc. ✣ E.g.: "do you manage your ref/master data with spreadsheets or with a more robust solution bringing real governance features?"
IT architecture	✣ How data, rules and processes are implemented? Are they based on MDM, BRMS and BPM? ✣ E.g.: "Are your IS Assets hard-coded or managed through business repositories such as MDM, BRMS and BPM?

When using the IS Rating Tool?

Audit and Gap analysis	✣ Within the IT department to support and encourage an innovative and progressive reshaping of IS/IT based on a holistic use of MDM, BRMS and BPM. ✣ Applied to a subset of the whole IS/IT system such as a business line, an application, a software package, etc. ✣ When selecting software packages to gauge their ability to manage data, rules and processes as real IS Assets. It means a Gap analysis. ✣ To complement with accounting operations and financial assessments such as IAS-IFRS.
Communication	✣ Between IT department and IS Stakeholders ✣ To contribute to an yearly IS assessment
Management	✣ Bench-learning between teams, partners, companies, etc. ✣ As a requirement appended to RFP/RFQ to help selecting contractors

The Data assessment part

Every item presented below corresponds to a well-defined question from the IS Rating Tool.

- **Mastering Data Knowledge.** To enforce a politics encouraging a unified data modeling and data knowledge management at the scale of the whole system, an approach of Enterprise Data Architecture is established.

Enterprise Data Architecture	✣ All natures of data should share a unified Enterprise Data Architecture relying on common concepts such as Business Objects gathered through Domains of Business Objects. ✣ Natures of data: ref/master data, transaction data, data flow, decisional data.
Basic Data Modeling	✣ Business Dictionary - Business point of view - Logical point of view.
Semantic Data Modeling	✣ Business Objects' lifecycles - Relationships between Business Objects
Ability to act	✣ Funding - Replacement value

- **Mastering Data Governance features.** Data governance features are the business functions used by IS/IT stakeholders to manage ref/master data. This is a list of features brought by the MDM such as data version management, authoring of data, querying, auditability, etc

Reference and master data	✣ Unified ref/master data governance – Ref/master data version management - Active data quality
Transaction data	✣ Data governance applied to applications oriented data
Decisional data	✣ Data governance applied to datawarehouses
Data flow	✣ Data governance applied to data flow
Security information	✣ Data governance applied to security policies
Managing data as a real asset	✣ Data Asset measurement – Data Asset overseeing – Data Asset tracking

- **Mastering IT approach to manage data.** To enforce agility and scalability, IT specialists have to take into account some key mechanisms in the field of Model Driven Architecture, BRMS integration, and integration of the MDM with the rest of the system.

Reference and Master Data repository	✣ Model-driven MDM
Rules integration	✣ MDM with rules repository (BRMS) – MDM with events management (CEP) [(1)]
Data integration	✣ MDM integration with the rest of the system – Data mapping

(1) Complex Event Processing.

The Rules assessment part

Every item presented below corresponds to a well-defined question from the IS Rating Tool.

Mastering Rules Knowledge. Enterprise Rules Architecture (ERA) is set up and must be seen as a part of the EA. It tackles rules and complements with Enterprise Data Architecture (EDA) and with Enterprise Processes Architecture (EPA). The goals targeted by the ERA are similar to ones established for EDA but applied to rules: full knowledge management of rules, enforcing a politics encouraging a unified rules modeling at the scale of the whole system.

Enterprise Rules Architecture	Rules classification – Business strategy formulation – Organization strategy formulation – Security policies formulation
Rules modeling	Rules grammar – Rules naming – Rules sets and dependencies – Rules templates – Reference and Master data values applied to rules definitions – Data subsets applied to rules
Rules enforcement	Explicit demand *versus* event activation
Ability to act	Funding – Replacement value

Mastering Rules Governance features. Rules governance features are the business functions used by IS/IT stakeholders to manage rules. This is a list of features brought by the BRMS such as rules version management, authoring of rules, querying, auditability, etc.

Rules governance	Unified rules governance – Rules lifecycles and version management – Rules authoring
Managing Rules as a real Asset	Rules Asset measurement – Rules Asset overseeing – Rules Asset tracking

Mastering IT approach to manage rules. IT specialists must enforce the BRMS use to take rules out of existing hard-coded software and ERP customs, and to use it when implementing new systems.

Rules engine versus hard-coding	BRMS applied to existing systems – BRMS applied to new development – Level of hard-coded rules
Rules execution and test	BRMS applied to batch executions – BRMS with MDM – Test rules against requirements- BRMS loose-coupling architecture

Holistic IS Value decision table

Intrinsic Value	Use Value	Business Value	Questions to raise when studying the holistic IS Value
Bad	Bad	Bad	Worst situation, no real IS value
Good	Bad	Bad	Lack of know-how and financial value?
Good	Good	Bad	No financial value?
Good	Bad	Good	Could bad working procedures damage IS Assets?
Bad	Good	Good	Is there a hidden weakness in IS Intrinsic value?
Bad	Bad	Good	Is it sustainable situation?
Bad	Good	Bad	Reuse the know-how to build something else?
Good	Good	Good	Best situation

Reminder: the IS Rating Tool tackles the IS Intrinsic value only (first column).

The Processes assessment part

Every item presented below corresponds to a well-defined question from the IS Rating Tool.

Mastering Processes Knowledge. Enterprise Processes Architecture (EPA) is set up and must be seen as a part of the EA. It tackles processes and complements with Enterprise Data Architecture (EDA) with Enterprise Rules Architecture (ERA). Most of the time companies have a good command of their processes map by using discipline such as City IT planning. However, processes are too often documented and managed without taking care of underlying rules and data. This missing link with data and rules is a significant problem because the true value of processes depends on the quality of data and rules. To tackle this issue, the EPA must take into account the outcomes stemming from the EDA (Business Objects and their life-cycles) and the ERA (organizational rules).

Enterprise Processes Architecture	Processes classification – Transversal organization formulation (value chain) – Business line organization formulation – Activity formulation
Processes modeling	Processes notation – Processes naming – Organization and security rules applied to processes
Ability to act	Funding – Replacement value

Mastering Processes Governance features. Processes governance features are the business functions used by IS/IT stakeholders to manage processes. This is a list of features brought by the BPM such as processes version management, authoring of processes, querying, auditability, etc.

Processes governance	Unified processes governance applied to processes – Unified processes governance applied to micro-processes – Processes lifecycles and version management – Processes authoring
Managing Processes as a real Asset	Processes Asset measurement – Processes Asset overseeing – Processes Asset tracking

Mastering IT approach to manage processes. IT specialists must enforce the BPM use to take key processes out of existing hard-coded software and ERP customs, and to use it when implementing new systems.

Processes engine versus hard-coding	Processes engine applied to existing systems – Processes engine applied to new development – Level of hard-coded processes
Processes execution and test	BPM with BRMS (loose-coupling) – BPM with MDM – Test rules against requirements

This document has been written by Pierre Bonnet, founder of the Sustainable IT Architecture community.
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Terms and definitions

In a fast-growing digital economy, the IS/IT opacity can no longer support operational tasks carried out by modern organizations. All company's stakeholders demand a high level of operations traceability to ensure a better risk management and to enforce the compliance with business regulations. These regulations are strongly concerned with the respect of data and rules traceability and auditability (1).

To tackle this requirement, the IS Rating Tool suggest a targeted IS/IT foundation from which organizations can gauge the value of IS Assets based on their Data, Rules and Processes.

IS Assets	Intangible assets defining what a company owns through its Information System. Other intangible assets: brands, intellectual properties, working procedures, customer knowledge, etc.
IS Intrinsic value	What a company owns through its IS/IT regardless of its working procedures (Use value) and financial aspects (Business value). The IS Intrinsic value is measured through the three types of IS Assets: Data, Rules and Processes. The IS Rating Tool tackles the IS Intrinsic value only.
IS Use value	What a company does to build, maintain and operate its IS/IT. It means the effectiveness of its working procedures. Usual frameworks in the field of IS Use value: Iso900x, CobiT, CMMi, Prince2, Togaf, ITIL, etc.
IS Business value	What a company earns from its IS/IT. It means the ability to align IS/IT with strategic and operational requirements. It also includes financial measurement. Usual frameworks in the field of IS Business value: IAS-IFRS, financial methods to compute ROI.
Holistic IS value	The actual IS value is established by taking into consideration the three types of IS value: Intrinsic value, Use value and Business value. A company could have a good command of its working procedures whereas its IS/IT intrinsic value still remains very bad. Only a holistic IS value can help companies to better understand the real value of their IS.
Linking value	When assessing the IS Intrinsic value, additional gains stemming from the mix of the three types of IS Assets must be integrated (Data, Rules, Processes). E.g. the value of the business rules depends on the performance level of the ref/master data used by these business rules.

(1) Sox, Basel, MIF, Solvency II, fiscal archiving, annual financial report, etc.