



Streamlining R&D with SAP Recipe Development



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- **Introduction**



What We Do

At Linx/AS, we help customers get the most out of their investment in the SAP platform.

Our success lies in fully understanding the people and processes that drive your business. Only then can we apply our in-depth technical knowledge to design and deliver the right solution.

From streamlining product development to improving corporate sustainability to giving your users access to SAP when, where, and how they want it—we make SAP run like you've never seen.

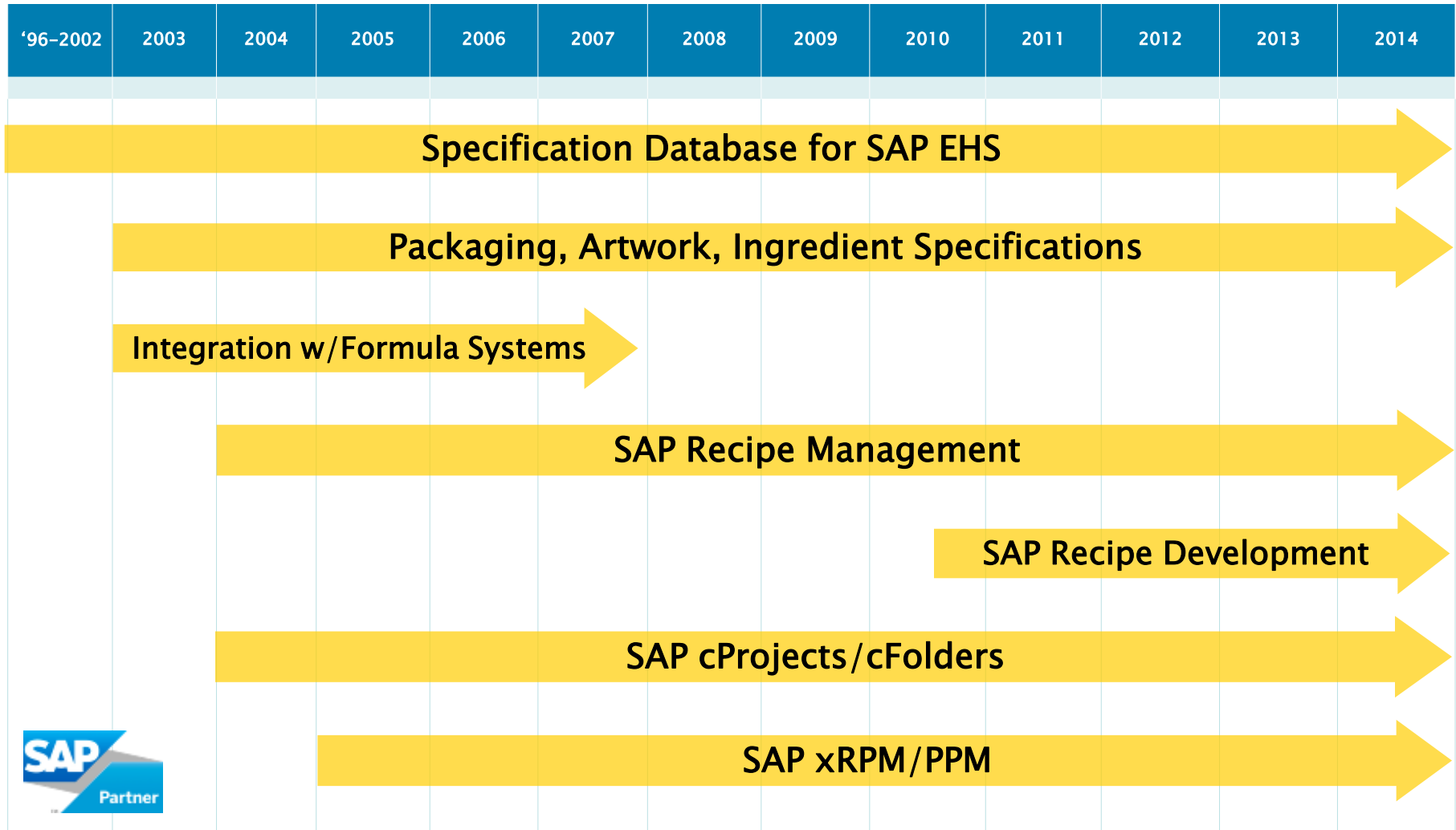
- SAP Consulting for Product Lifecycle Management (PLM)
- SAP Consulting for Environment, Health & Safety Management (EHSM)
- SAP User Experience (UEX) Consulting
- Software Innovations



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Over 15 years working with customers to implement, develop and enhance the PLM capabilities of SAP.

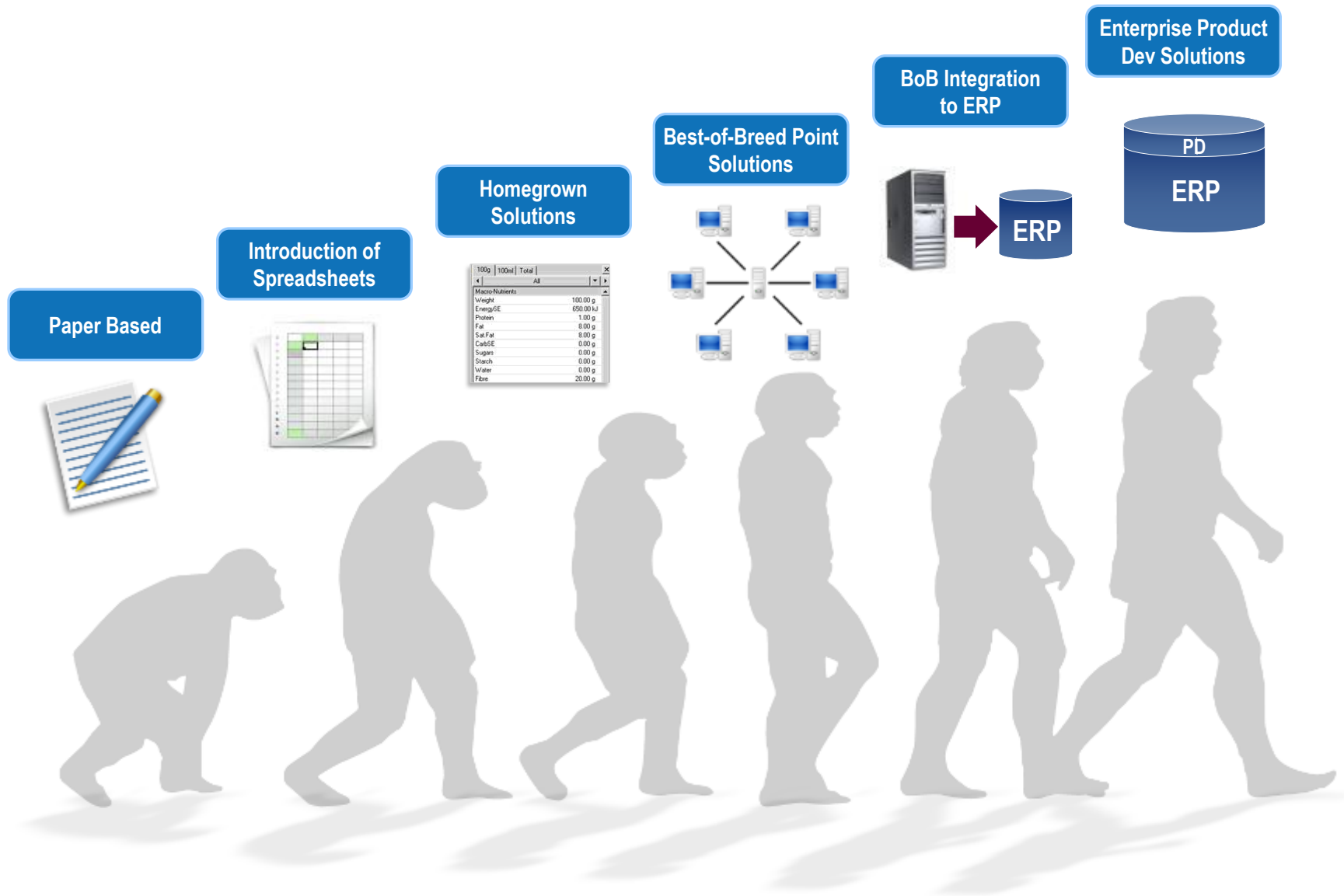




- **Business Drivers & Benefits**



The Evolution of Process PLM Technology (in Theory)





The Evolution of Process PLM Technology (in reality)

Across industries and even within companies, a great variance in the maturity of product development technology still exists.





Realization setting in that:

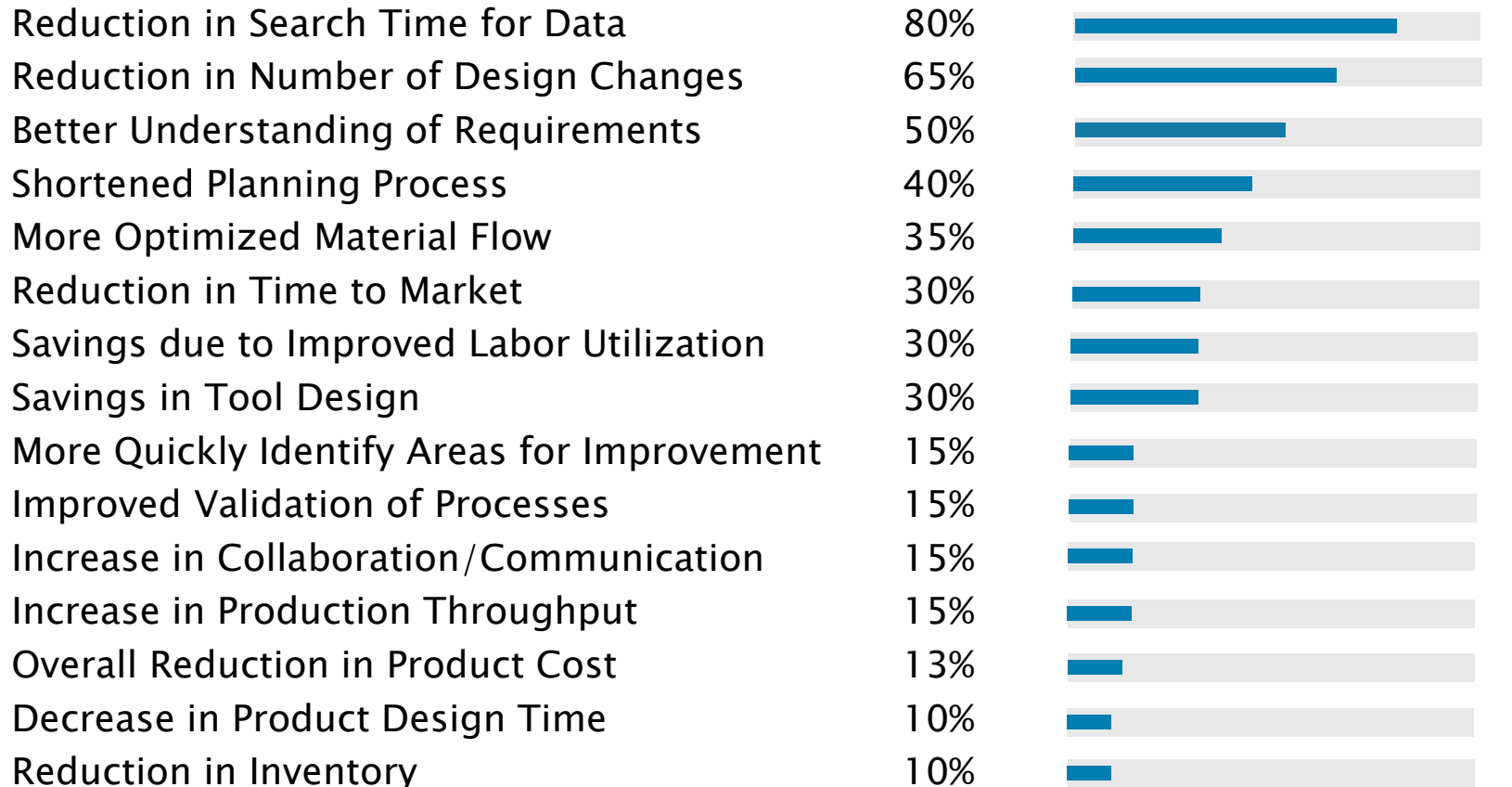
- TCO of homegrown solutions is too high and regulations/requirements grow faster than what internal development can keep up with.
- TCO of best-of-breed solutions always turns out to be much higher than initial estimates.
- Best-of-breed systems do not scale well for large global organizations.
- Best-of-breed system integration with ERP inevitably more complex and expensive to design, build and maintain
- A single version of the truth for product data tied into ERP provides swifter speed to market and a greater level of traceability/compliance control.
- Enterprise product development provides a more efficient alignment with manufacturing.
- Collaboration with suppliers, contract manufacturers, co-developers and other external roles in product & packaging development is increasing and requires a robust integrated platform.



What Drives PLM Initiatives

Benefit

% Improvement



**source CIMDATA*



- **SAP Recipe Development Overview**

- SAP RD drives the development and eventual commercialization of new products.
- Manages all aspects of product development from formulation and process instructions to compliance checking and packaging specifications.
- Requirements and design will vary widely by industry with typical applications in food, beverage, fragrances, flavors, chemical/specialty chemicals, and pharmaceuticals industries.

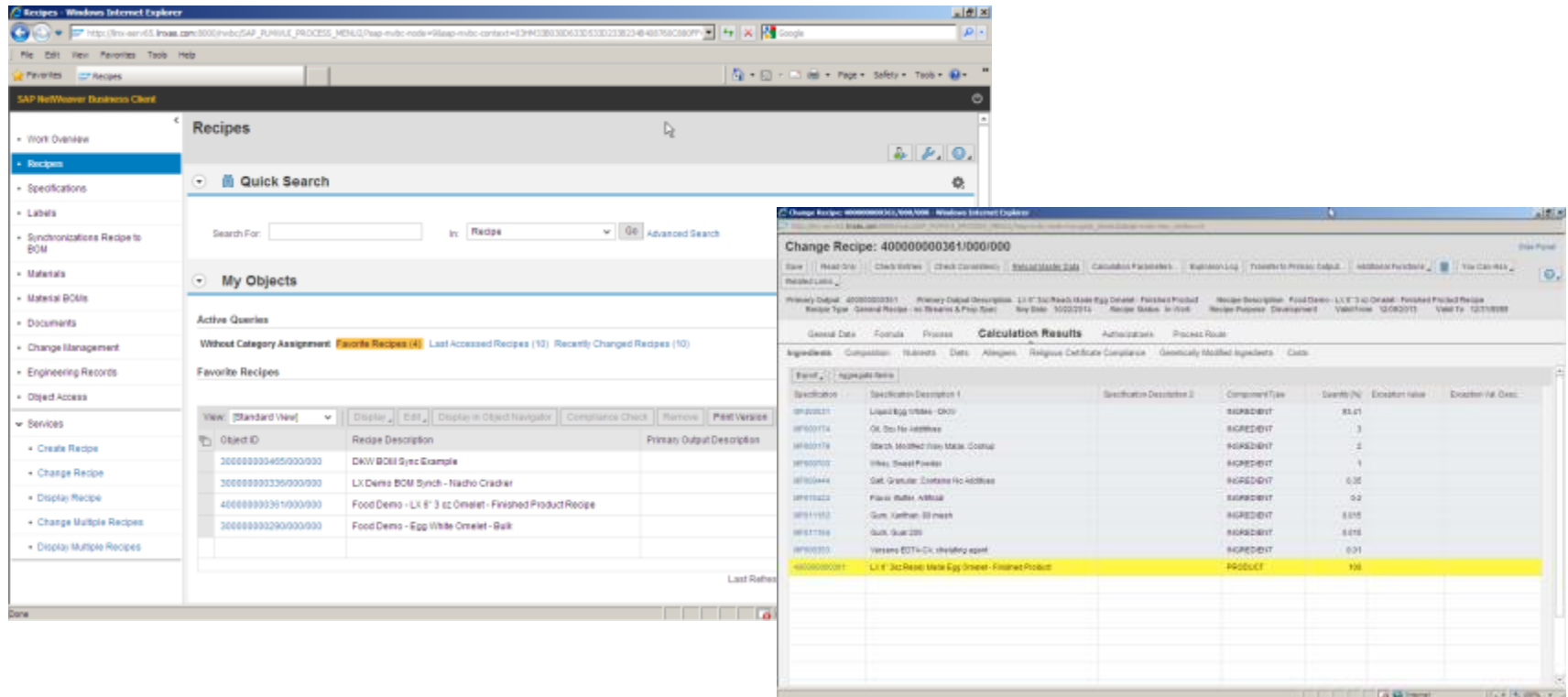


RD Development History

- Over the past 5 years, SAP AG has invested significant effort and money into the redevelopment of SAP capabilities for supporting R&D processes
- In 2011, SAP released its first version of SAP RD with its Enhancement Pack 5 (EhP5). Early adopters were primarily in the food industry
- SAP RD on EhP6 and EhP7 added a number of significant improvements to the first release and is now a mature and proven solution
- Key improvement areas – usability, stability/performance, new functionality
- Recipe Management will still be available and will co-exist with RD. However SAP will no longer provide functionality enhancements – only bug fixes
- Anticipate delays in response time for RM fixes and increase in maintenance expense as expertise for the solution decreases.



Enhanced User Experience



- Significant improvements on user interface
 - Web based, flexible and more user intuitive
- No transaction codes (i.e. no RMWB)
- Consistent organization of screens and navigation
 - Customizable
 - Maintains history/favorites
- Easier access to view detailed data without having to navigate out of recipe



Easy, Robust Search

Search

Search For: In: [Advanced Search](#)

Search Results

Results per Page:

<input type="checkbox"/> 115	Material Description: Linx - Country Chicken Nuggets Owning Context: Created By: ATAOBANE Changed On: 10/01/2014	Type Description: Perishables Created On: 10/01/2014 X-plant status:
<input type="checkbox"/> 10000000022	Document Type: Z01 Document Part: 000 Document Description: Chicken Nuggets Created By: ATAOBANE Changed On: 10/10/2014	Document Version: 00 Created On: 10/10/2014 Changed By: ATAOBANE
<input type="checkbox"/> 40000000031	Specification Type: LX_CP_PDA Identifier 1: Identifier 2: Owning Context: Created By: ATAOBANE	Spec Type Description: Finished Good Pallet Data Created On: 10/11/2014 Status Desc.:
<input type="checkbox"/> 30000000041/000/003	Recipe Desc.: Linx - New Chicken Nuggets - Bulk Owning Context: Created On: 10/14/2014 Last Changed On: 10/14/2014 Last Changed By: DWONG	Rcp.Type Description: General Recipe Created By: DWONG Purpose Description: Development
<input type="checkbox"/> 000000000839	Building Block Desc.: Chicken Nugget Building Block Owning Context: Created On: 10/08/2014 Last Changed On: 10/08/2014 Last Changed By: DWONG	B. Block Type Desc.: Process Building Block Created By: DWONG Purpose Description:
<input type="checkbox"/> 120	Material Description: Linx - Boneless Chicken Trim Owning Context: Created By: ATAOBANE Changed On: 10/13/2014 Changed By: ATAOBANE	Type Description: Raw materials Created On: 10/01/2014 X-plant status:
<input type="checkbox"/> 40000000030	Specification Type: Z_FINISHED Identifier 1: Identifier 2: Owning Context: Created By: ATAOBANE	Spec Type Description: Finished Product Created On: 10/10/2014 Status Desc.:
<input type="checkbox"/> 30000000041/000/002	Recipe Desc.: Linx - New Chicken Nuggets - Bulk Owning Context: Created On: 10/14/2014 Last Changed On: 10/14/2014 Last Changed By: DWONG	Rcp.Type Description: General Recipe Created By: DWONG Purpose Description: Development
<input type="checkbox"/> 122	Material Description: Linx - Chunk Chicken Breast Meat Owning Context: Created By: ATAOBANE	Type Description: Raw materials Created On: 10/01/2014

- Primary search engine has changed—Enterprise Search (TREX)
- Cross-object search capability
- Fuzzy search capability
- Real-time suggestions: field-level search as text is entered (Context Sensitive Searching)
- Object Navigator – Where Used



Working with Recipes Is Easier

Change Multiple Recipes

Save

Read Only

Check Entries

Copy Recipe

Calculation Parameters...

Change Recipe Selection...

Changeability Overview...

Display Single Recipe

Additional Functions

You can also

Formula

Calculation Results

Export

Show Details

Insert

Delete

Copy

Paste

Move Up

Move Down

Renumber Items

Formula Items			000000001030/001/000		000000001030/001/001		000000001030/001/002		000000001030/001/003	
Sort...	Specification	Description 1	Quantity	Unit of Measure	Quantity	Unit of Measure	Quantity	Unit of Measure	Qua...	Unit of Measure
1			80	LB	80	LB	80	LB	80	LB
10	000000001023	Tristar Extender	20	LB	20	LB	20	LB	18	LB
20	000000001031	Universal White Ink X123	10	LB	10	LB	10	LB	10	LB
30	000000001032	Universal Green Ink	44	LB	42	LB	44	LB	44	LB
40	000000001015	Pantone Blue	1	LB	1	LB	2	LB	1	LB
50	000000000965	Deionized Water	1	LB	1	LB	1	LB	1	LB
60	000000001010	Water Based Defoamer	1	LB	1	LB	1	LB	1	LB
70	000000001025	Universal Yellow X-2	3	LB	3	LB	3	LB	3	LB

- Recipe numbering based on the Specification number, no longer a separate unique numbering
- Copying from existing recipe is more intuitive and simpler
- Have ability to create many versions of the same recipe quickly
- Multi-formula editor/comparison
- Mass change capability

Recipe Calculation Enhancements

Display Recipe: 300000000041/000/003

[Edit](#)
[Check Consistency](#)
[Reload Master Data](#)
[Calculation Parameters...](#)
[Explosion Log](#)
[Activate Simulation...](#)
[Application Log](#)
[Additional Functions...](#)
[You Can Also...](#)
[Related Links...](#)

Primary Output: 300000000041 Primary Output Description: Lnx - New Chicken Nuggets - Bulk Recipe Type: General Recipe Key Date: 10/28/2014 Recipe Status:
 Recipe Purpose: Development Valid From: 10/01/2014 Valid To: 12/31/9999

[General Data](#)
[Formula](#)
[Process](#)
[Calculation Results](#)
[Authorizations](#)
[Process Route](#)

[Ingredients](#)
[Composition](#)
[Nutrients](#)
[Diets](#)
[Allergens](#)
[Religious Certificate Compliance](#)
[Genetically Modified Ingredients](#)
[Costs](#)
[Nutrient Loss Calculation](#)

*Quantity: *Rating: *Validity Area:

Nutrient Groups: Process Loss: Storage Loss:

[By Ingredient](#)
[Nutrient Composition](#)

[Export](#)

Specification	Specification Description 1	Specification Description 2	Quantity	After Process Loss	After Storage Loss	UoM	Calc. Exc. Val.	Calc. Exc.Val.Desc.	Qty in Spec.	UoM
800000000086	Vitamin A		107.43899	107.43899	107.43899	IJ				IJ
800000000087	Vitamin C		1.833219	1.833219	1.833219	MG				MG
800000000088	Vitamin D					IJ				IJ
800000000089	Vitamin E		0	0	0	IJ				IJ
800000000090	Thiamin		0.149452	0.149452	0.149452	MG				MG
800000000091	Riboflavin		0.133089	0.133089	0.133089	MG				MG
800000000092	Niacin		4.81668	4.81668	4.81668	MG				MG
800000000093	Vitamin B6		0.304839	0.304839	0.304839	MG				MG
800000000094	Folate		40.6434	40.6434	40.6434	µG				µG
800000000095	Vitamin B12		0.150242	0.150242	0.150242	µG				µG
800000000096	Biotin					µG				µG
800000000097	Pantothenic Acid		0.478402	0.478402	0.478402	MG				MG

- Similar calculations for costs, ingredient & composition breakdown
- Can apply scrap % to product or components
- Scaling of input/output quantity
- Custom calculations can be inserted
- Improved formula optimization/data modeling

SAP Recipe Development Labeling

Display Label Set: 300000000038/000/000

Specification: 300000000038 Specification Description: Linx - Nacho Cracker (NAM/PROD) Label Set Description: Linx - Nacho Cracker Label Status: In Work Valid From: 18/08/2014 Valid To: 12/31/9999

General Data Label Definition Package Label Authorizations

Global Definition Ingredient Label Qualitative Label Component Label

Ingredient List Target Location: PUBLIC-US

Copy Settings from Target Location: Apply

Ingredient / Group	Icon	Action	Row Type	Description	Display	Composites	Component Type	Statement	Declared Description	Text for Draft	Calculated Proportion
(Combination)		Undo	Combination		<input checked="" type="checkbox"/>	<input type="checkbox"/>		CUST-1000000000000016	Flour	Flour	0.170558
2000000000250			Ingredient	Linx - Soybean Spray Oil #1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INGREDIENT	CUST-LINX00000000000095	Oil	Oil	0.170559
2000000000232			Ingredient	Linx - Water	<input checked="" type="checkbox"/>	<input type="checkbox"/>	INGREDIENT			Linx - Water	0.170559
(Aggregation)		Undo	Aggregation		<input checked="" type="checkbox"/>	<input type="checkbox"/>					1.034090
2000000000251			Ingredient	Linx - Sodium Bicarbonate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	INGREDIENT			Bicarbonate	0.012003
2000000000254			Ingredient	Linx - Topical Oil	<input checked="" type="checkbox"/>	<input type="checkbox"/>	INGREDIENT			Oil	0.255334
2000000000252			Ingredient		<input checked="" type="checkbox"/>	<input type="checkbox"/>					0.051067

Nutrition Facts / Valeur nutritive

Per / par 15 mL Per / par 125 mL

Amount	% DV*	Amount	% DV*
Teneur	% VO*	Teneur	% VO*
15		120	
0 g	0 %	2.5 g	
0 g	0 %	1.5 g	
0 g	0 %	1.5 g	
0 mg		10 mg	
20 mg	11 %	150 mg	
2 g	1 %	15 g	
0 g	0 %	0 g	
2 g		15 g	
1 g		10 g	
		2 %	1
		4 %	3
		4 %	3
		0 %	

Nutrition Facts

8 servings per container

Serving size 2/3 cup (55g)

Amount per 2/3 cup

Calories 230

% DV*

12%	Total Fat 8g
5%	Saturated Fat 1g
	Trans Fat 0g
0%	Cholesterol 0mg
7%	Sodium 160mg
12%	Total Carbs 37g
14%	Dietary Fiber 4g
	Sugars 1g
	Added Sugars 0g
	Protein 3g
10%	Vitamin D 2mcg
20%	Calcium 260mg
45%	Iron 8mg
5%	Potassium 235mg

* Footnote on Daily Values (DV) and calories reference to be inserted here.

Nutrition Facts

Amount/serving % Daily Value* Amount/serving % Daily Value*

Total Fat 1.5g	2%	Total Carbohydrate 26g	9%
Saturated Fat 0.5g	3%	Dietary Fiber 2g	8%
Trans Fat 0.5g		Sugars 1g	
Cholesterol 0mg	0%	Protein 4g	
Sodium 260mg	12%		

Serving Size 2 slices (56g)
Servings Per Container 10

Calories 140
Calories from Fat 15

Vitamin A 0% • Vitamin C 0% • Calcium 6% • Iron 6%
Thiamin 15% • Riboflavin 8% • Niacin 10%

*Percent Daily Values are based on a diet of other people's secrets. Your daily values may be higher or lower depending on your calorie needs.
Calories: 2,000 2,500
Total Fat: Less than 65g 80g
Sat. Fat: Less than 20g 25g
Cholesterol: Less than 300mg 300mg
Sodium: Less than 2,400mg 2,400mg
Total Carbohydrate: 350g 375g
Dietary Fiber: 25g 30g

- RD Labeling functionality allow the creation and management of the data sets needed to create product labels for each needed region/country
- Compliance checks on Recipe ensures accurate data on Master Label (Label Copy)
- Output label content used for graphic/label development
- Preview/Label Copy generated in PDF or WWI Documents



Data Integration in Product Packaging Artwork



XML from RD

```
</RMSLS_XML_NUTRIENT_ITEMS>
- <RMSLS_XML_NUTRIENT_ITEMS>
  <POSNR>000000000020</POSNR>
  <NUTRIENT_INT>00000000000347</NUTRIENT_INT>
  <NUTRIENT_EXT>8000000000063</NUTRIENT_EXT>
  <NUTRIENT_TXT>Calories</NUTRIENT_TXT>
  <FLG_SHOW_ITEM>X</FLG_SHOW_ITEM>
  <STM_OBJNO>000000000000</STM_OBJNO>
  <VALUE_CALC>465.0</VALUE_CALC>
  <DECIMALS>6</DECIMALS>
  <UNIT_CALC>KCA</UNIT_CALC>
  <UNIT_CALC_TXT>Kilo Cal</UNIT_CALC_TXT>
  <VALUE_DECL>0.0</VALUE_DECL>
  <DECIMALS_DECL>0</DECIMALS_DECL>
  <UNIT_DECL />
  <UNIT_DECL_TXT />
  <FLG_INITIAL_DECL>X</FLG_INITIAL_DECL>
  <STATMT_ID_INT />
  <STATMT_ID_EXT />
  <STATMT_ID_TXT />
  <RDA_PROFILE_VALUES />
  <STATEMENTS />
```



Label data exported from SAP RD Label as XML is used as input for packaging artwork file (e.g., Adobe Illustrator layout)



Product Structure Synchronization (PSS)

Synchronization Recipe to Manufacturing BOM: 000000001030/000/

[Edit](#) [Related Links](#)

Primary Output: 000000001030 Alternative Recipe: 000 Primary Output Description: LX TRI-COLOR GREEN X2

Synchronization Units

[Export](#) [Delete](#) [Start Synchronization](#) [Additional Functions](#)

Material	Plant	BOM Usage	Alternative BOM	Synch. Unit Status	Target Material BOM
145	LX01	Production	1	Not Aligned	145/LX01/1/1

[← Previous Synchronization Target](#) [Next Synchronization Target →](#)

Details for Synchronization Target 145/LX01/1/1

[General Data](#) [Mapping](#) [Synchronization Options](#)

[Export](#)

Source Recipe	Recipe Version	Target Change Number	Valid From	Change Number Description	Map. Status	Current Synch.	Created By	Created On	Last Changed By	Last Changed On
000000001030/000/000	000				Not Aligned	<input checked="" type="radio"/>	AKINGMA	10/16/2014	AKINGMA	10/16/2014
000000001030/000/000	000	500000000005	10/16/2014	BOM Synch RD Demo	Aligned	<input type="radio"/>	AKINGMA	10/16/2014	AKINGMA	10/16/2014

- Significantly improved manufacturing BOM creation and synchronization functionality with change masters (ECM)
- Ehp6 supports RD Recipe to logistics BOM synchronization
- EhP7 now also supports RD Recipe synchronization with logistics Master Recipes



Workflow in RD: Process Routes

Change Specification: 000000001043

Save | Read Only | **Check Entries** | Check Consistency | Import Data... | Default Settings... | Application Log | Initiate Workflow ▶ | Additional Functions ▾ | You Can Also ▾ | Related Links ▾

Type Real substance Key Date 10/28/2014 Header Status Active

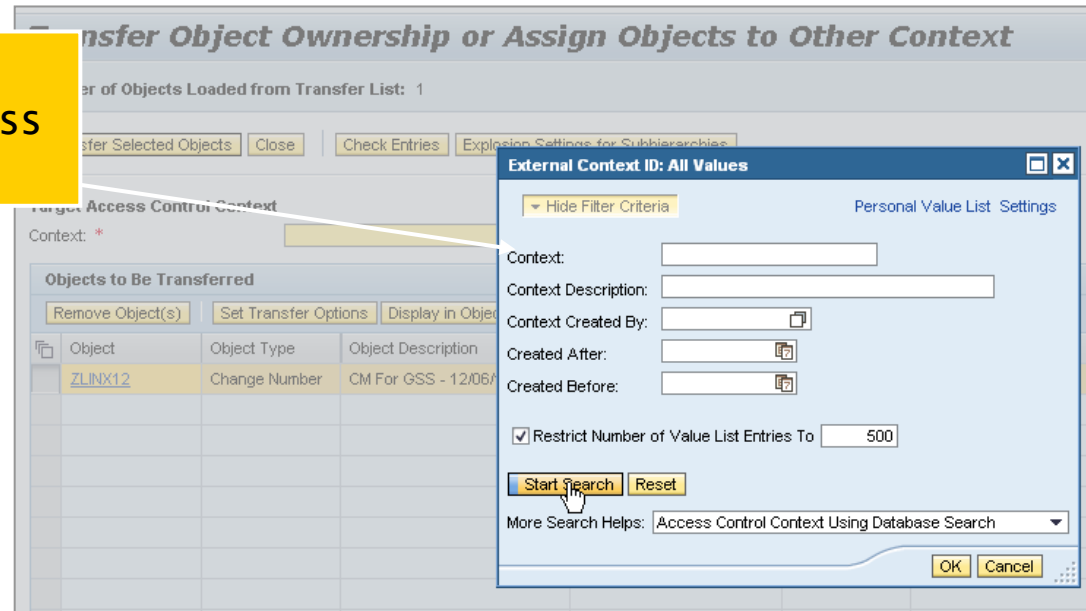
General Data Properties **Process Route**

Expand All | Collapse All | Show Details | Delete Task | Add Sequential Task | Add Parallel Task | Stop Workflow | Additional Functions ▾ | Settings

Process Tasks	Type	Activity	Status Icon	Status	Long Text	Latest End Date	Latest End Time	Processing Time (Days)	Priority
▼ Header							12:00:00 AM	0	
▼ Parallel Steps							12:00:00 AM	0	
Bonthuys, Nico	SAP User	Display	■	Completed	Display	10/22/2014	12:00:00 AM	0	4 High
Bonthuys, Nico	SAP User	Display	⦿	Work Item Sent (and overdue)	Change	10/22/2014	12:00:00 AM	0	5 Medium
Love, Brian	SAP User	Display			Create	10/22/2014	12:00:00 AM	0	7 Lower

- Standard workflow in SAP PLM/Recipe Development is based on Process Routes
- Ad-hoc Notification system that allows routing of a recipe/specification from one person to another in series or parallel
- Process Routes not as sophisticated as native SAP Workflow Engine, but much easier to setup and execute

ACM/ACC lets
external roles access
PLM objects



- External roles (vendors/suppliers/contract manufacturers) playing a larger role in product data management.
- Access control management (ACM) via access control contexts (ACC) provides suppliers direct access to PLM objects (specifications, recipes, documents, etc.)
- Also used for internal segregation of PLM objects based on product line/customer



- **Transitioning from Recipe Management**



SAP RD addresses many of the challenges faced by users of RM

Challenge with RM	Benefit of SAP RD
No additional enhancements planned by SAP—platform obsolete and reached limits in terms of design platform.	<ul style="list-style-type: none">• Establish a platform supported by SAP for future enhancements and development• Enable opportunities to participate in future functionality design decisions by SAP (RDAC)
Usability	<ul style="list-style-type: none">• SAP RD makes significant improvements on usability• RD user interface much more acceptable in the ‘world’ of R&D, Engineering, QA, Regulatory
Weak in supporting early lifecycle development	<ul style="list-style-type: none">• Improved usability and flexibility results in greater acceptance within R&D with simplified training• New features, such as multi-formula editor and object navigator, improve efficiencies
Keeping R&D recipes and manufacturing BOMs aligned	<ul style="list-style-type: none">• SAP RD provides Product Structure Synchronization functionality to maintain alignment between recipes and BOMs and/or Master Recipes
Accessing data in RM for reports and downloads/extract	<ul style="list-style-type: none">• SAP RD provides support for data access via Excel downloads and WWI reporting
Label generation (ingredient lists, allergen classifications, nutrition, etc.) requires manual handover to separate system	<ul style="list-style-type: none">• SAP RD improves upon RM labeling functionality• Data seamlessly flows from ingredients to recipes to label data generation
System performance of RM is poor	<ul style="list-style-type: none">• Recipe structures in RD have been redesigned providing for improved performance• SAP RD on SAP HANA to further accelerate performance



Timeframe will vary and will depend on the complexity of the existing PLM design. Key drivers that will impact the duration are:

- **How many custom WRICEF objects exist**
 - Are they known? Or will effort be required to collect definitive list?
 - Will standard RD replace the custom object?
 - For those objects remaining, how many will require modification to work in RD environment
- **Data**
 - How clean and consistent is the existing data?
- **New functionality**
 - What new functionality of SAP RD is in scope?
 - How much business process re-engineering is required?
- **Infrastructure**
 - What version of SAP is starting point for upgrade to EhP6/7?
 - Upgrade of existing PLM RM system or build new PLM7.X system and migrate data?
 - Implement 7.X on a HANA platform?



High-Level Guidelines on Transformation/Migration Effort

Scenario	Characteristics	Effort
1	<ul style="list-style-type: none">• Standard RM• < 10 development objects• No complex development objects• Minimal process change• Clean data/minimal data restructuring required	3–4 months
2	<ul style="list-style-type: none">• 10–20 development objects• <3 complex objects• Minimal process change• Data cleanliness is fair/minimal data restructuring required	4–6 months
3	<ul style="list-style-type: none">• 20–50 development objects• < 10 complex objects• Medium level process change• Data cleanliness is poor/data restructuring required	6–8 months
4	<ul style="list-style-type: none">• 50+ development objects• 10+ complex objects• Significant process change• Data cleanliness is poor/data restructuring required	8+ months



Recipes - Windows Internet Explorer

http://linx-serv65.linxas.com:8000/hwbc/SAP_PLMWUI_PROCESS_MENU2/?sap-nwbc-node=9&sap-nwbc-context=03HM33B030D633D533D233B234B408760C880FF

SAP NetWeaver Business Client

Recipes

- Work Overview
- Recipes**
- Specifications
- Labels
- Synchronizations Recipe to BOM
- Materials
- Material BOMs
- Documents
- Change Management
- Engineering Records
- Object Access

Services

- Create Recipe
- Change Recipe
- Display Recipe
- Change Multiple Recipes
- Display Multiple Recipes

Quick Search

Search For: In: [Advanced Search](#)

My Objects

Active Queries

Without Category Assignment **Favorite Recipes (4)** Last Accessed Recipes (10) Recently Changed Recipes (10)

Favorite Recipes

Define New Query Personalize

View: [Standard View]

Object ID	Recipe Description	Primary Output Description	Change Number	Created By
300000000465/000/000	DKW BOM Sync Example			DWONG
300000000336/000/000	LX Demo BOM Synch - Nacho Cracker			DWONG
400000000361/000/000	Food Demo - LX 6" 3 oz Omelet - Finished Product Recipe			DWONG
300000000290/000/000	Food Demo - Egg White Omelet - Bulk			DWONG

SYSTEM DEMO



- Q&A

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