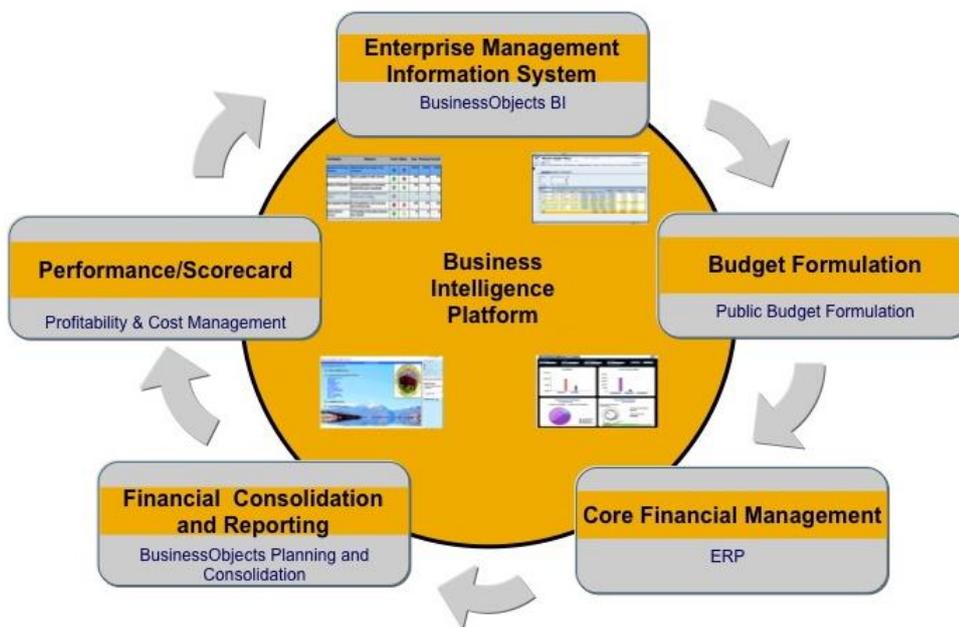


The Benefits of an SAP Integrated Platform for Enterprise Performance Management, Business Intelligence and Enterprise Resource Planning.

A summary of technical advantages, risks and total cost considerations.

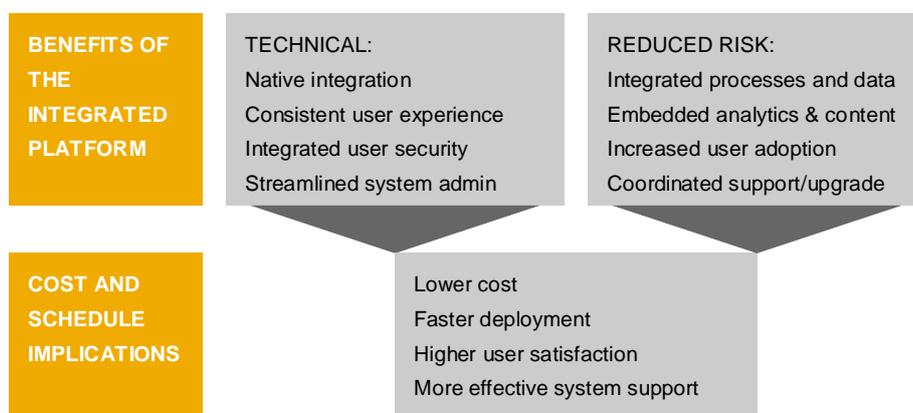
Delivering comprehensive financial management capabilities require applications that cover the continuum from initial planning and forecasting of business transactions to consolidating and reporting results. Throughout this cycle, decision makers require real-time analytics to quickly spot trends, investigate anomalies, and forecast results. SAP's suite of Public Sector financial and analytic applications provides this wide range of capabilities. Native integration multiplies the value of the suite by delivering a consistent user experience, embedded analytics, and streamlined system implementation and administration.

Figure 1: SAP's Public Sector Integrated Financial Management Platform



Using these integrated applications, SAP customers can achieve comprehensive, responsive, adaptable financial management at lower cost and with less risk than a solution built from non-integrated components.

Figure 2: Integrated Platform Results in a Higher Quality Solution at Lower Cost with Less Risk



TECHNICAL ADVANTAGES OF THE INTEGRATED PLATFORM

SAP's integrated platform of financial and analytic applications offers significant technical advantages over non-integrated products with comparable features and functions. These advantages include:

- Native integration
- Consistent user experience
- Integrated user security
- Streamlined system administration

These benefits translate into faster delivery of capability to end users, higher user adoption rates, simplified system administration and maintenance, and a lower total cost of ownership.

Native Integration:

Technology advances in the last decade have created applications that enable users to perform complex tasks requiring data from diverse sources presented in a meaningful context. The advent of web services and other advances in application integration have made such intuitive applications possible. The “magic in the mix” is the complex, behind-the-scenes, connections between systems that allow users to gather and analyze the information needed to do their tasks. Understanding the relationships between the data in the systems and building the pathways to present the data to the user is among the hardest work of constructing and maintaining robust analytical applications.

SAP has invested over \$200 million and 218,000 person days of effort to fully integrate its analytical applications to SAP ERP, our core financial management application, and our other offerings. This investment allows SAP customers to rapidly deploy analytical applications that put real-time financial information at the fingertips of users, allowing them to display information in the format and context best suited to meet their analytic requirement (e.g., dashboards, formatted columnar reports, summaries with drill down, etc.).

The delivered integration eliminates the complex task of bringing together data from multiple source systems and translating it into common structures and taxonomies. Data developed in any of the financial and analytical applications (general ledger, budget formulation, strategy management, costing, financial consolidation) can be made available for use in business processes, reporting and analysis through prebuilt integration.

Consistent User Experience:

Deploying new applications mitigates the challenges of training users and getting them to use the new features. With low user adoption, the investment made is marginalized. A clear advantage of the SAP integrated platform is that users are presented with a consistent user experience. For those who already have experience with another SAP application, they will find a familiar look and feel, and need minimal training to learn the new capabilities. New users will find they use the same tools to display and analyze data whether they are processing transactions, building budgets, or preparing consolidated financial statements. This consistent user interface will reduce required training and allow users to become proficient quickly. In turn, this will reduce the burden on the support team as the applications are rolled out.

Integrated User Security:

Managing user security is a complex task in any organization, but particularly so in a large, diverse organization. The burden on IT security staff to ensure appropriate user profiles are created and properly assigned is heavy, especially since providing inappropriate access can result in financial loss or damage to the organization's sensitive data. To aid organizations in maintaining sound security, SAP has integrated the user security of all of its applications, allowing IT to manage this critical task in a centralized profile. For example, user permissions, defining what data a user can see or update, are automatically inherited in new applications when they are deployed. In other words, IT does not have to rebuild all of the user permissions, especially around organizational authorizations when deploying a new analytical tool. This represents a material savings in time and effort for security administrators given the frequency with which employees are hired, transferred or retired.

Streamlined System Administration:

All SAP solutions are natively integrated with SAP Solution Manager, the application management component of SAP's NetWeaver technology platform, which facilitates technical support for distributed systems – with functionality that covers all key aspects of solution deployment, operation, and continuous



improvement. A centralized, robust application management and administration solution, SAP Solution Manager combines tools, content, and direct access to SAP to increase the reliability of solutions and lower total cost of ownership. This means that Solution Manager comes delivered with content and tools that accelerate implementation, effectively manage change control, facilitate testing, monitor performance and isolate root causes of issues, and allow efficient IT system administration and user support. Solution Manager understands all of the SAP components in the integrated platform, permitting IT to support the entire solution from a centralized administration application.

RISKS MITIGATED BY THE INTEGRATED PLATFORM

Creating a holistic financial management solution by assembling best-of-breed solutions and integrating them is a viable approach; however, it introduces serious risks and costs that are avoided when implementing a single integrated platform that supports all of your solutions from a single vendor. The best-of-breed approach is best justified when available integrated platforms lack the functionality required to meet the needs of the business and specialized, niche solutions are necessary. For comprehensive financial management needs, SAP's integrated platform offers the rich functionality of a best-of-breed solution with significantly lower risk of an integrated solution from a single vendor. The integrated platform reduces risks in several important ways.

Integrated Processes and Data

By delivering the connections between the components in the integrated platform, SAP enables the free flow of business processes, master data, transactional data and workflow between its components. Creating these connections when integrating best-of-breed solutions represents a significant area of project risk, both in terms of cost overruns and schedule delays because the lifecycle tasks of requirements/design, development, and testing dramatically increase the work required to have a production ready solution. In an SAP integrated solution, there is no need to map and translate data when moving between components, or build connections to allow a business process to flow across system boundaries. Equally important, these integrations are supported by SAP, thus removing another risk factor in maintaining the system over time.

Delivered Embedded Analytics and Business Content

Another advantage of the SAP integrated platform are the embedded analytics and business content delivered with the SAP solution that serve to greatly reduce the risk of project delays and cost overruns. SAP has invested heavily in delivering software that is ready to run with key reports and analytics that customers commonly desire, greatly reducing the burden of custom report development. For example, SAP recently invested over 2,500 person days, at an estimated cost of over \$2.5 million, to embed its analytical reporting tools inside SAP ERP, making sophisticated formatted and graphical displays of core financial data available from inside the financial application. Another relevant example is SAP's Public Sector Budget Formulation solution, which includes templates for key Public Sector budgeting processes, such as projecting salaries and benefits in a governmental context (i.e., grades, steps, locality pay, etc.).

Increased User Adoption

An often overlooked project risk is that users will not adopt the solution, preferring instead to hold on to old, often manual, ways of getting their work accomplished. With the SAP integrated platform, users will have the advantage of a familiar look and feel across application components and seamless integration among components, making their jobs simpler and more intuitive, thus reducing the risk that they will not adapt to the new solutions.

Coordinated Technical Support and Upgrade Protection

Another risk in any implementation that integrates disparate solutions from multiple vendors is that problem resolution becomes protracted when difficulty arises in determining which solution is the source of the problem. Finger pointing and volleying of blame can cause significant delays. With SAP's integrated platform, SAP support covers the entire solution, avoiding issues of problem ownership. It is in SAP's best interests to facilitate a rapid resolution of the customer's problem, which is facilitated when those who built the solutions and the integration between them all exist under one corporate roof.

COST IMPLICATIONS OF THE INTEGRATED PLATFORM

The technical advantages and reduced risks discussed above clearly have positive implications for the cost of implementing and maintaining a comprehensive financial management solution. While the cost benefits to any one customer will depend on their specific circumstances, the cost implications of eliminating the work to



develop and maintain interfaces between system components can be estimated based upon the number and complexity of integration touch points between the solutions involved. The following table provides a rough estimate of the magnitude of the cost of creating the interfaces that are delivered in the SAP integrated platform:

Figure 3: Estimated Project Integration Cost Avoided by Selecting the SAP Integrated Platform

Example of Cost Impact: Using a Third Party EPM and Reporting Solution with an SAP ERP system	Integration complexity	Low	Medium	High
	Number of interfaces	12	11	10
	Cost Per Interface			
	Design, Develop, Test, Document	\$15,000	\$50,000	\$150,000
	Initial Cost to Integrate	\$180,000	\$550,000	\$1,500,000
	Ongoing support and maintenance costs			
	Enhance, Upgrade, Modify, Fix (20% Annually for 5 Years)	\$180,000	\$550,000	\$1,500,000
	Subtotal	\$360,000	\$1,100,000	\$3,000,000
	Embedded Reports		\$2,000,000	
	Total 5 Year Estimated Integration and Development Cost		\$6,460,000	

Estimate based integrating SAP ERP and SAP BW with SAP Business Objects Enterprise, SAP Business Objects Business Planning and Consolidation, SAP Public Budget Formulation, and SAP Profitability and Cost Management. Estimates are conservative, and different third party solutions may require additional integration. Estimates do not account for integration to SAP Portal, SAP Solution Manager, or other SAP Solutions or NetWeaver technologies which are delivered with the SAP Business Objects products, but would be incremental to the estimates above for third-party solutions

Other cost impacts include:

- Lower cost to train employees due to common features, lexicon and tools
- Lower cost to develop templates and reports due to delivered template and analytics
- Lower cost to administer and support solution due to common support environment
- Lower cost to train IT because of single platform vs. multiple vendors

These cost advantages may result in the additional advantage of being able to roll out new functionality faster, resulting in a faster time to benefit and increased return on investment.

BENEFITS OF COMPONENT SOLUTIONS IN THE SAP INTEGRATED PLATFORM

More specific information on the specific technical advantages, risks and cost considerations of the component solutions comprising the SAP Integrated Platform is presented in the following table.

Product	Technical Benefits of a Unified SAP Platform	Risk Mitigation	Cost Considerations
EPM Suite – BusinessObjects Planning & Consolidation (BPC)	<ul style="list-style-type: none"> • Direct interface to SAP ERP means real-time visibility <ul style="list-style-type: none"> ✓ Transactional data ✓ Master data & hierarchies ✓ Dynamic drill-through to the transaction details • Integration with BI tools provide real-time visibility to BPC data from any BI tool as well as the ability to write back to BPC from a dashboard • Based on SAP NetWeaver BW platform eliminates need to move data between BPC and SAP NetWeaver BW • Direct/Native data source provides transparency of where the data "came from" (ERP component, journal, elimination, etc) • Data integrity assured with automated data updates 	<ul style="list-style-type: none"> • Custom development required for interfaces to move data could jeopardize on-time, on-budget implementation schedule • Data redundancy increases opportunity for data to get out of sync reducing data integrity • Potential "re-development" required each time an enhancement pack or new release of SAP and/or 3rd Party solution is delivered • Potential delay in closing cycle due to increased need for reconciliation amongst data 	<ul style="list-style-type: none"> • There are 5 delivered integration points within SAP BPC and the SAP Integrated Platform as well as Native persistence with SAP NetWeaver BW <ul style="list-style-type: none"> ✓ Native BPC/ NetWeaver BW-no interface required ✓ ECC to BPC ✓ PBC to PCM ✓ PCM to BPC ✓ BPC to BI ✓ BI to BPC • Leverage existing NW investment for the



	<p>from core ERP for transaction & master data as well as content (infocubes, infosources) to populate transactional data into infocubes</p> <ul style="list-style-type: none"> IT will never have to remap to SAP source data. As product enhancements are delivered BPC will always be able to extract data from core systems. BPC is the only solution that is delivered with the certified connectivity to SAP ERP and BW today and in the future Smaller infrastructure footprint as they can leverage in-house technology with NW Scalable solution with the ability to support X,000's of users including via the use of BWA today as well as support for HANA, SAP's in-memory database Integration with GRC Process Controls to help ensure a fully compliant financial close Real-time availability of the consolidation results provides an efficient process to shorten the closing cycle 	sources	<p>infrastructure</p> <ul style="list-style-type: none"> Additional resources (personnel, report development, etc) required to support reconciliations amongst redundant data stores
EPM Suite – BusinessObjects Profitability & Cost Management	<ul style="list-style-type: none"> Exchange master data, cost data and results with SAP NetWeaver BW for quicker and more reliable analysis Leverage improved SAP BusinessObjects Universe infrastructure and sample content Integration with BPC allows "re-use" of cost drivers and unit costs as seeds for Financial Statement footnotes and accountability plan Export results from PCM directly into NetWeaver BW for reporting and analysis Direct interface to SAP ERP through maintained and supported bi-directional "feeds" for: <ul style="list-style-type: none"> Transactional data Master data & hierarchies Dynamic drill-through to the transaction details Integration with BI tools provide real-time visibility to BPC data from any BI tool as well as the ability to write back to BPC from a dashboard PCM is delivered with certified connectivity to SAP ERP and BW today and in the future Fully leverages SAP infrastructure, applications, workflows, and skill sets Eliminates the need to build custom integration between budget, cost and performance applications and data models 	<ul style="list-style-type: none"> Avoids incorrect results that can occur by unreconciled data stores Custom interfaces require modification/maintenance every time a new release is applied to solution landscape Audit trail lost with movement of data between vendor applications Reconciliations required for transactional data contained in redundant data stores 	<ul style="list-style-type: none"> There are 7 delivered integration points within SAP PCM and the SAP Integrated Platform which would need to be custom built with a 3rd party solution <ul style="list-style-type: none"> PCM to BW BW to PCM ECC to PCM PBC to PCM PCM to BPC PCM to BI BI to PCM Additional resources (personnel, report development, etc) required to support reconciliations amongst redundant data stores
EPM Suite – Public Budget Formulation (PBF)	<ul style="list-style-type: none"> Master data structures (field names) and values are consistent between financial and budget formulation modules Master data hierarchies are consistent between financial and budget formulation modules SAP delivers, maintains and supports extractors and retractors to share appropriate data at appropriate levels of detail between modules 	<ul style="list-style-type: none"> Increased development hours and testing process with already stretched resources Reduced functionality delivered to end users because more resources put towards developing interfaces with SAP Custom integration to 3rd party products is not "future proof". Likelihood of incurring additional expenses related to interface each time a new release is delivered and deployed. Staying on older releases to avoid the costs of constantly keeping interfaces in sync yields short-term opportunity costs as not able to take advantage of enhancements as well as long term risk of de-support or extended maintenance costs. Ongoing costs to maintain are difficult to forecast/budget. A future change or enhancement to those custom interfaces could be 20%, or it could easily be 120% depending on the extent of the change required. 	<ul style="list-style-type: none"> 13 Integration points with ERP are delivered with PBF. Below is a list integrations between PBF and ERP that would need to be custom built with a 3rd party solution. 4-Low complexity, 3-Medium complexity and 6-High complexity. The development days for the 4-Low complexity items was approximately 150 days which did not include the testing, documentation etc. <ul style="list-style-type: none"> FM master data from ERP to PBF (low) CO master data from ERP to PBF (low) Summarized prior-year GL data from ERP to PBF (low) Summarized current year budget data from ERP to PBF (low) Summarized mid-year GL data by accounting period to PBF (medium) Summarized Grant data from ERP to PBF (medium) Summarized Project data from ERP to PBF (medium) Master data from ERP to PBF, Adopted budget / spending plan / adjusted budget from PBF to ERP Budget Control (high)

			<ul style="list-style-type: none"> ✓ HR Job master data from ERP to PBF (high) ✓ HR Position master data from ERP to PBF (high) ✓ HR Employee master data from ERP to PBF (high) ✓ HR Pay Table master data from HR to PBF (high) ✓ HR Wage Type - benefits, supplemental pays, locality pays, statutory costs, etc (high) ✓ Maintenance of interfaces could range from 20% of original development cost/year to more than 120% depending on complexity of change(s) on either side
BusinessObjects BI Embedded Analytics	<ul style="list-style-type: none"> • Embedded BI content within the SAP Business Suite for a "bottoms-up," operational BI approach • SAP EhP 5 delivers 40 SAP Crystal Reports and 10 SAP BusinessObjects Dashboards out-of-the-box. This functionality is not available without BusinessObjects license. • Ensures users are getting BI in context of the business process • Standard reports now delivered in ECC 6 EHP 5 with Crystal Reports, Xcelsius Web Intelligence and Explorer • Display ABAP List View (SAP GUI or WebDyn Pro with SAP Crystal Reports or Xcelsius) • Deploy as SAP NetWeaver BW content • Standard reports and dashboards published in real-time as layout option in the SAP List Viewer (ALV) can be applied out-of-the box without additional development 	<ul style="list-style-type: none"> • Increased transactional errors in absence of analytics in context of business process • Multiple reporting interfaces/tools for end users to learn • Lack of pre-built, pretested, and pre-optimized content and code for SAP increase project scope, time, resources and risks • Risks rise in not meeting end user expectations and reduced functionality; that can reduce project support and funding • Increased tradeoffs made in scope, budget, time and end user/stakeholder enablement • Custom integration to 3rd party products is not "future proof". Very strong likelihood of incurring additional expenses related to interface each time a new release is delivered and deployed. Results in increased risk to operating and maintaining budget baselines (in contrast to very predictable software maintenance delivery and costs) • Risk of staying on older releases to avoid the costs of constantly keeping interfaces in sync yields short-term opportunity costs as not able to take advantage of enhancements as well as long term risk of de-support or extended maintenance costs. • Ongoing costs to maintain are difficult to forecast/budget. A future change or enhancement to those custom interfaces could be 20%, or it could easily be 120% depending on the extent of the change required. • Multiple reporting interfaces/tools for end users to learn • SAP will not build, maintain, test, validate or support 3rd party capabilities, connections, or integration points. 	<ul style="list-style-type: none"> • Coding new connections drives up cost related to project scope, time, resources and operations and maintenance efforts • Starting with nothing prebuilt for SAP increases cost, complexity, scope issues, and ongoing maintenance costs and risks. • Prebuilt analytics are estimated to reflect between 2200 and 2500 person days in effort already invested by SAP. • Each integration point not maintained by SAP increases cost and complexity verses the cost of paying a predictable maintenance amount to SAP; it is a highly predictable cost and it leverages all of the other SAP customers' input to continuously improve. • Multiple reporting interfaces/tools for end users to learn requires multiple sources of training, end user enablement
BusinessObjects BI Portal Integration	<ul style="list-style-type: none"> • Portlet providing BI launch pad features – enabling rapid deployment of BI frontend application in portal • Feature parity with BI launch pad – all BI contents, all actions (view, edit, create, schedule) • Viewing portlet for building custom portal application • UI driven workflows to display documents • Supports browsing the SAP BusinessObjects Enterprise repository 	<ul style="list-style-type: none"> • Integration with Portal needs to be built non-natively, and is not tested, supported, approved or maintained by SAP • This creates an increase in risk to the program from several dimensions including end user dissatisfaction, scope creep, time loss, resources misallocated and costs unpredictable and increasing. 	<ul style="list-style-type: none"> • Coding new connections drives up risks to project scope, time, resources and operations and maintenance efforts • Starting with nothing prebuilt for SAP increases cost, complexity, scope issues, and ongoing maintenance costs and risks. • Each integration point not maintained by SAP increases

		<ul style="list-style-type: none"> Breaks the end-to-end analyses that are critical to timely problem resolution, adds significant risk to end user dissatisfaction, increase time spent by project team to resolve issues, takes team away from other in-scope activities 	<p>cost and complexity verses the cost of paying a predictable maintenance amount to SAP; it is a highly predictable cost and it leverages all of the other SAP customers' input to continuously improve.</p>
BusinessObjects BI Native Integration	<ul style="list-style-type: none"> Benchmarks show query performance increases 300% with BICS over old connectors leveraged by 3rd parties 300% increase in performance means a query that takes 30 seconds with old connectors will take 10 seconds with BICS; that difference alone can make or break end user and key stake holder adoption of what a project provides them BICS provides access to extended ERP and BW functionality (structures, hierarchies, keydate, BEx Variables) Fastest performance vs Third Party Interface Native connectivity means reduced implementation effort for IT managers Central ownership of consolidated BI tools for consistency in data, standards, reporting, and simplified training and system management Integrated platform leverages SAP investment, business content Reduced TCO through re-use, consistent toolset, end-user adoption Simplified IT administration, maintenance, training and security Performance enablers such as in-memory analysis and optimized queries 	<ul style="list-style-type: none"> Slow performance times. Performance benchmarks show BICS native integration is 3X faster performance versus 3rd party MDX (which is the only way 3rd parties can integrate with BW) connection. Non strategic support for 3rd party tool means non strategically supported by SAP resulting in limited capabilities and reduced options. SAP will no longer have strategic focus on further developing or improving these API's; Slow performance for financial reporting can dramatically impact the project's success; users will seek alternatives; reduced user satisfaction with threaten the operations and maintenance budget of the program. 	<ul style="list-style-type: none"> Other means of performance optimization will need to be developed; Unforeseen costs will be incurred to match BICS performance; For example, to make up a 300% difference, hardware specifications may increase 300% resulting in significantly more hardware to achieve the same performance SAP will continue to improve performance of BICS; what 3rd party can use will not be continuously improved.
BusinessObjects BI Solution Manager Integration	<ul style="list-style-type: none"> Integration SAP Solution Manager: 11 Integration points prebuilt, pre-tested, and pre-optimized for SAP ERP customers Information stored as part of the System Landscape Directory allow for End to End Change Analysis End to End Exception Analysis integrated with SAP Solution Manager allow for alerting and analysis of thresholds for SAP BusinessObjects components Alerts are correlated and propagated in a unified manner which gives a complete, end to end picture. This reduces complexity and risk. Central monitoring and End to End Workload analysis using SAP Solution Manager is providing alerting and monitoring functionality for the SAP BusinessObjects environment and the SAP environment in a single environment Using the central trace integration with SAP Solution Manager provides access to tracing and log files of the End to End Data Capture The Solution Manager Remote Support Component leverages SAP BusinessObjects Enterprise to better manage, monitor and evaluate their SAP BusinessObjects Enterprise system 	<ul style="list-style-type: none"> Integration with Solution Manager needs to be built non-natively, and is not tested, supported, approved or maintained by SAP This results in an increase in risk to the program from several dimensions including end user dissatisfaction, scope creep, time loss, resources misallocated and costs unpredictable and increasing. Breaks the end-to-end analyses that are critical to timely problem resolution, adds significant risk to end user dissatisfaction, increase time spent by project team to resolve issues, takes team away from other in-scope activities 	<ul style="list-style-type: none"> Coding new connections drives up risks to project scope, time, resources and operations and maintenance efforts Starting with nothing prebuilt for SAP increases cost, complexity, scope issues, and ongoing maintenance costs and risks. Total SAP person years invested in integration of SAP Solution manager with SAP BusinessObjects is approximately 50 person years (estimates from SAP Engineering) Each integration point not maintained by SAP increases cost and complexity verses the cost of paying a predictable maintenance amount to SAP; it is a highly predictable cost and it leverages all of the other SAP customers' input to continuously improve. Undertaking similar efforts to ensure tight integration would dramatically affect all dimensions of project risk. Integration development would require approximately 50 person years