

Royal Canadian Mint

Accelerating the pace of innovation with V5 PLM and Microsoft® Server Product Portfolio





Royal Canadian Mint Objectives

- **Maintain leadership role in the minting industry**
- **Develop new products for coin collectors at a faster pace**
- **Reduce risk in metal markets**
- **Engineer products right the first time**



“Dassault Systèmes and Microsoft software solutions have helped us dramatically reduce the time it takes to develop innovative products.”

Beverley Lepine, Chief Operating Officer,
Royal Canadian Mint

Company Overview

With a worldwide reputation for product quality, customer service, and minting technology, the Royal Canadian Mint (RCM) is at the forefront of innovation in producing currency. Its business lines include Canadian and foreign circulation coins, numismatic coins (for collectors), gold and other bullion investment products, and refining.

The RCM is a leading producer of coins for foreign countries with approximately a one-third share of the world market. A commercial Crown corporation of the Canadian government, the RCM has over 700 employees and facilities in Ottawa and Winnipeg.

Business Challenges

RCM management sees its business not simply as producing coins, but rather competing in the micro-payment market with pre-paid cards, transit tokens, and the many other ways to conduct transactions. It continually seeks to drive innovation to stay at the forefront of this fast-paced global market.

The RCM must quickly develop many innovative numismatic products for both seasoned and potential coin collectors. Frequently, new products need to be developed very quickly in order to provide collectors with products that are associated with special events.

On the foreign currency side, fierce competition and rapidly fluctuating metals prices have squeezed the RCM's profits and increased its risks. The challenge is to reduce the time required to produce quotes so pricing can be locked in at the last minute.

The RCM still generates the lion's share of its revenue by striking / producing coins. Designing and tooling coins right the first time is critical to its success.



Solution

The RCM selected Dassault Systèmes Version 5 Product Lifecycle Management (DS V5 PLM) and an information technology architecture based upon Microsoft® Server Product Portfolio to accelerate the pace of innovation.

“We standardized our information systems using Microsoft technology. This has helped simplify, integrate and reduce total cost of ownership of our information systems,” said Neil Hallam, Chief Information Officer for the RCM. PLM solutions from Dassault Systèmes have automated our quoting and product development business processes and streamlined engineering.”

CATIA V5 helps engineers get it right the first time

In the past, RCM engineers generated 2D drawings of coins and tooling from many angles and laborious calculations were needed to make everything fit together. Now they use CATIA V5 parametric modeling to generate, modify and validate concepts in a fraction of the time. For example, an engineer can reduce a coating thickness layer by a few microns and the steel core of the coin will automatically expand to maintain the correct weight.

The time to create packaging for coins for collectors has also been greatly reduced because parametric models of standard packages can easily be modified to fit new products. When designers adjust parameters such as dimensions, the model and drawing update themselves automatically to fit to the new coin.

ENOVIA SmarTeam and SQL Server automate quoting and product development workflow

SmarTeam - Workflow based on the Microsoft SQL Server™ database streamlines and standardizes the interaction of the 18 people and six departments – metals, purchasing, transportation, finance, legal and production – involved in putting together a foreign currency quote.

The New Product introduction process has also been automated by SmarTeam - Workflow to ensure an optimal collaborative procedure synchronizing marketing, sales, engraving, finance, legal, purchasing and other departments. Each department has visibility into the other's work and changes are automatically rolled up in the summary. Automated workflow and reminder notices make sure nothing falls through the cracks.



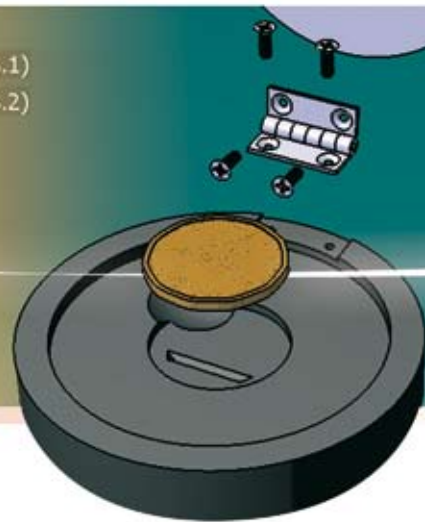
“In the past we had many interdependent 2D drawings, and it was easy to forget to update one when something changed. With V5 PLM, we just change one number and everything – the coin, tooling, drawings, and reports – all update automatically.”

Xianyao Li, Director, Corporate Engineering,
Royal Canadian Mint





- Part2 (Part2.1)
- M2-56 x 114 FHS (M2-56 x 114 FHS.1)
- M2-56 x 114 FHS (M2-56 x 114 FHS.2)
- Puck Booklet (Puck Booklet.1)
- Constraints
- Constraints



“ENOVIA SmarTeam and SQL Server provide visibility across our organization that makes it possible to work concurrently to a much higher degree than in the past,” said Peter J. Ho, Executive Director Foreign Circulation Group, RCM.

Microsoft solutions provide integrated information architecture

The RCM made the decision to switch to an information architecture based upon solutions including Windows Server®, SQL Server™, Microsoft BizTalk® Server, and Microsoft Office SharePoint® Server in order to take advantage of cutting-edge applications, a higher level of integration, and a friendlier user interface. The RCM also decided to implement Microsoft Dynamics™ AX enterprise resource planning (ERP) solution due to research that showed Axapta offers more advanced technology and a lower total cost of ownership than leading Tier 1 ERP solutions.

“Microsoft Dynamics AX is much easier to configure than traditional ERP solutions which makes it relatively fast, inexpensive and less risky to adapt to RCM’s business requirements,” Hallam said.

Results

The RCM has nearly completed the task of revamping its information technology infrastructure based primarily on Microsoft and V5 PLM solutions. The RCM selected these two key suppliers because their solutions are tightly integrated to ensure the free movement of securely controlled data throughout the organization. Microsoft and V5 PLM solutions also provide the ability to automate business processes and visibility of accurate, up-to-date information throughout the organization.

Foreign currency quotations: increased time savings

The average time needed to produce a foreign currency quote has been reduced from 27 to 13.5 days. Managers in the foreign currency department are confident that they can soon further reduce this time to seven to ten days. Being able to



“Dassault Systèmes PLM solutions and Microsoft Server Product Portfolio have increased our pace of innovation by helping us to develop new products and quotations faster and to engineer our products right the first time.”

Neil Hallam, Chief Information Officer,
Royal Canadian Mint



SmarTeam - [Documents]

Edit Actions View Tree SmarTeam

0234 C 2007 BU Dollar - Joseph Blain

ERTDESIGN-0023 A 2 2007 BU Dollar

DLABEL-0023 A 0 2007 BU Dollar

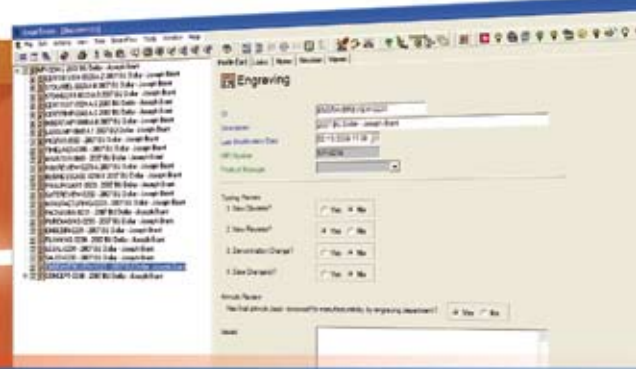
TINSERT-0023 A 0 2007 BU Dollar

ERTTEXT-0023 A 0 2007 BU Dollar

ERTFIMP-0048 A 0 2007 BU Dollar

INSERTIMP-0048 A 0 2007 BU Dollar

LABELIMP-0048 A 1 2007 BU Dollar



produce the quote so much more quickly increases quote accuracy since the RCM can wait until the last minute to obtain the most up-to-date metal prices from suppliers. The RCM has increased the number of quotes per year from 50 to about 80. It also now has time to produce several alternatives for each quote, which translates into about 250 quotes per year without any increase in staff.

New product development: more products, same resources

The combination of business process re-engineering and ENOVIA SmartTeam process automation has reduced the amount of time required for the complete product development process. The days of effort on the part of all involved departments from initial concept to shipment of product to customers has been reduced from about 400 to 127 days. This has made it possible to increase the number of new products annually from eight in 2000 to 42 in 2005, without any increase in manpower. In 2007, the RCM will release 80 new gift products and 36 new numismatic coins, including coins in support of the Vancouver 2010 Olympic and Paralympic Winter Games.

Engineering: time savings and greater productivity

CATIA V5 has reduced by 75% the overall time to design the full range of coins and tooling produced. Engineers now can easily determine the weight of coins, plus manipulate them and the associated tooling in 3D to verify fit and functionality. Engineers detect problems on the computer screen prior to building the tooling, saving time and money. As a result, the engineering department has been able to handle the substantial increase in the number of new products and foreign currency projects without any increase in staff.

Enterprise resource planning: lower cost of ownership

Based on extensive research, the RCM concluded that Microsoft Dynamics AX will provide a dramatically lower total cost of ownership over five years because it is easy to implement, customize, and modify. The layered technology means that customizations are easier to build and maintain and one layer can be customized without affecting the functionality of other layers. The use of Microsoft products including Windows Server, Microsoft Office, SQL Server, BizTalk Server, SharePoint Server throughout the RCM's infrastructure will provide tighter integration and more seamless connectivity between applications.

V5 PLM Key Benefits

-50%
Time for quotations
Time needed to produce foreign currency quotations has been halved

+425%
Number of new products
New production introductions increased from 8 to 42

-75%
Time to design new coins and tooling
CATIA V5 parametric modeling favors design reuse

Dramatically lower total cost of ownership
Microsoft Dynamics AX ERP system almost half the cost of Tier 1 alternatives over five years



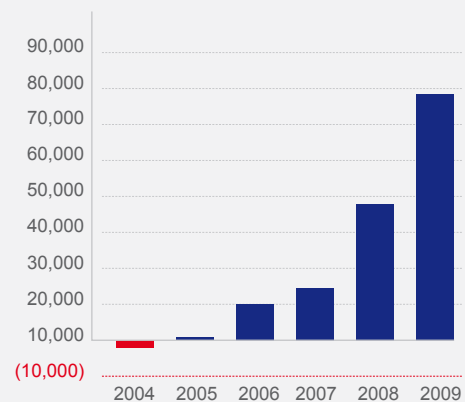
Independent ROI study

CIMdata performed an independent Return on Investment (ROI) study on the Royal Canadian Mint's implementation of the V5 PLM solution. The study was based on interviews with RCM personnel, data about the benefits of the PLM solution, and the cost of its deployment (software, hardware, training, maintenance, ramp-up and administration). CIMdata's ROI model calculated the overall ROI for a six-year period.

The Royal Canadian Mint's ROI is significant with a very short payback period and an impressive internal rate of return:

- pay back period is 1.3 years
- net present value of benefit over six years is CDN\$77.9 million
- internal rate of return is 380%.

Cumulative Discounted Cash Flows - k\$



CIMdata is a leading and independent worldwide consultancy specialized in PLM strategy

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Additional benefits achieved with V5 PLM and Microsoft*

Benefit Area	Benefit
Overall design costs	Down 40%
Revenue from additional foreign currency quotations	Up 60%
Time to create collector coin packaging	Down 60%
Product Management costs	Down 60%

*Findings based on Return on Investment study performed by CIMdata



“The implementation of Microsoft Dynamics AX and its integration with ENOVIA SmarTeam will help us to control costs more closely and increase our profit margin.”

Peter J. Ho, Executive Director Foreign Circulation Group, Royal Canadian Mint

Future

The next major step in the RCM's DS V5 PLM - Microsoft implementation will be the launch of Microsoft Dynamics AX. ENOVIA SmarTeam will be integrated with the new ERP system through BizTalk Server. This will enable coin and tooling designs produced for foreign currency quotes and new product specifications to flow directly into the manufacturing bill of materials. The result will be more accurate and detailed budgeting information that can be used in further cost reduction efforts.

V5 PLM for the Industrial Equipment Industry

Dassault Systèmes has been working with major Industrial Equipment manufacturers and suppliers for more than 20 years to provide a range of leading PLM solutions.

DS V5 PLM solutions cover the product development needs of Industrial Equipment sectors such as machinery manufacturing for industry, construction, mining, paper, printing, textiles, and other

specialized production and process domains.

The DS V5 PLM portfolio of CATIA, DELMIA, ENOVIA and SIMULIA enable Industrial Equipment manufacturers to increase innovation, reuse company knowledge and part design, standardize processes, ensure quality, increase flexibility and reduce product development costs.

For information about DS V5 PLM solutions for the Industrial Equipment, visit www.3ds.com

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As a world leader in 3D and Product Lifecycle Management (PLM) solutions, the Dassault Systèmes group brings value to more than 90,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes develops and markets PLM application software and services that support industrial processes and provide a 3D vision of the entire life cycle of products from conception to retirement

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The Dassault Systèmes V5 PLM offering consists of CATIA V5 for designing the virtual product, DELMIA for virtual production, ENOVIA for global collaborative lifecycle management (including ENOVIA VPLM, ENOVIA SmarTeam, and ENOVIA MatrixOne), and SIMULIA for virtual testing.

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