Guide to Selecting a Workflow Orchestration Product
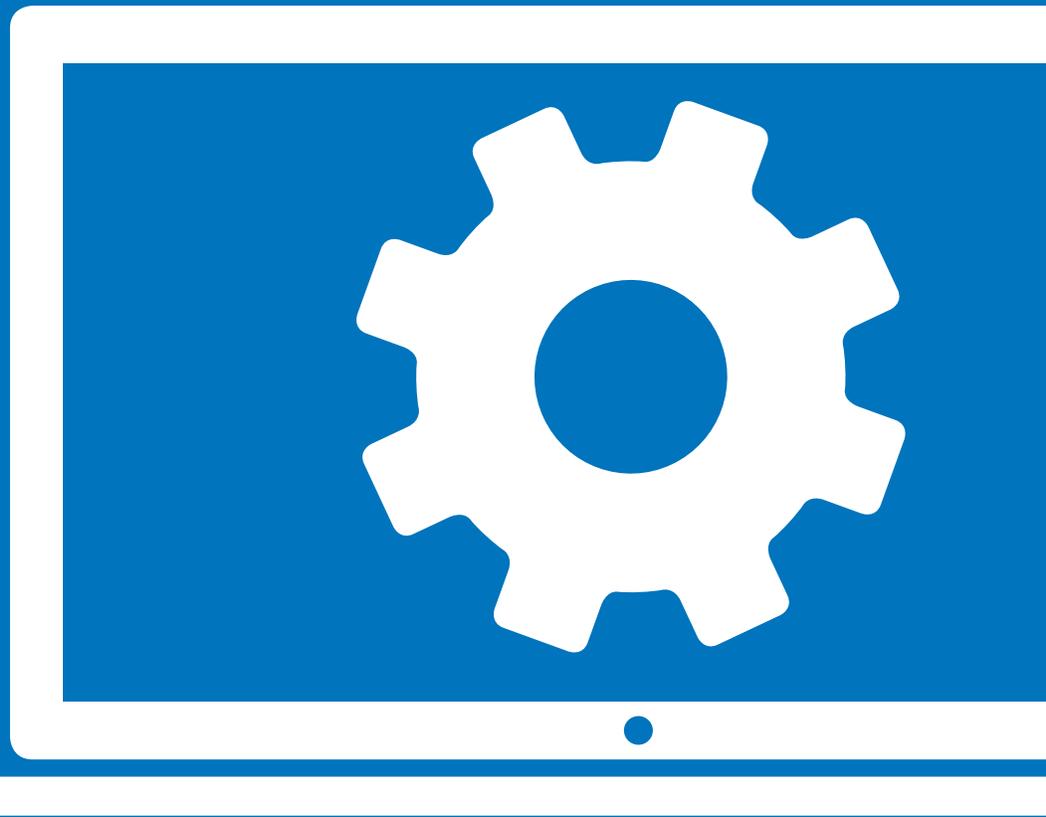
Based on real user reviews of Control-M from BMC

IT Central Station
Unbiased reviews from the tech community

InfoWorld
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ABSTRACT

As companies seek digital transformation, they are asking IT to implement increasingly complex workflows that span multiple platforms, data sources and development methodologies. To handle these requirements, IT departments are turning to workflow orchestration tools. Though not new, these tools have grown more sophisticated in recent years. Modern best practices and selection criteria are emerging. This paper explores how IT managers can leverage these practices and selection tips to get the best workflow orchestration results. It is based on reviews by IT Central Station members, sharing their experience with Control-M, BMC's workflow orchestration product.

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INTRODUCTION

Business initiatives like digital transformation invariably require multiple IT systems to operate together in choreographed workflows. Advances in integration technology, such standards-based Application Programming Interfaces (APIs), make such orchestration possible. Workflow orchestration tools establish and monitor the orchestration. Though not new, these tools have grown more sophisticated in recent years. As the technology evolves, users are devising new best practices. The criteria for what constitutes the right solution are also evolving. This paper explores how IT managers can leverage these practices and selection tips to get the best workflow orchestration results. It is based on reviews by members of IT Central Station sharing their experience with Control-M, BMC's workflow orchestration product.

A Brief Overview of Workflow Orchestration

A notable reality in today's IT world is that no single system does everything. Vital business processes frequently require multiple systems to function in coordinated ways. For example, to realize the goal of data visualization, it is usually necessary to orchestrate the operations of systems that ingest and store data, systems that analyze data and those that do the actual visualization and reporting. To the end user, the results are seamless. But under the surface, at least three separate systems are inter-operating and handing off data and procedure calls. Today, this almost always means the invocation of APIs. Figure 1 offers a simple reference architecture for the resulting process.
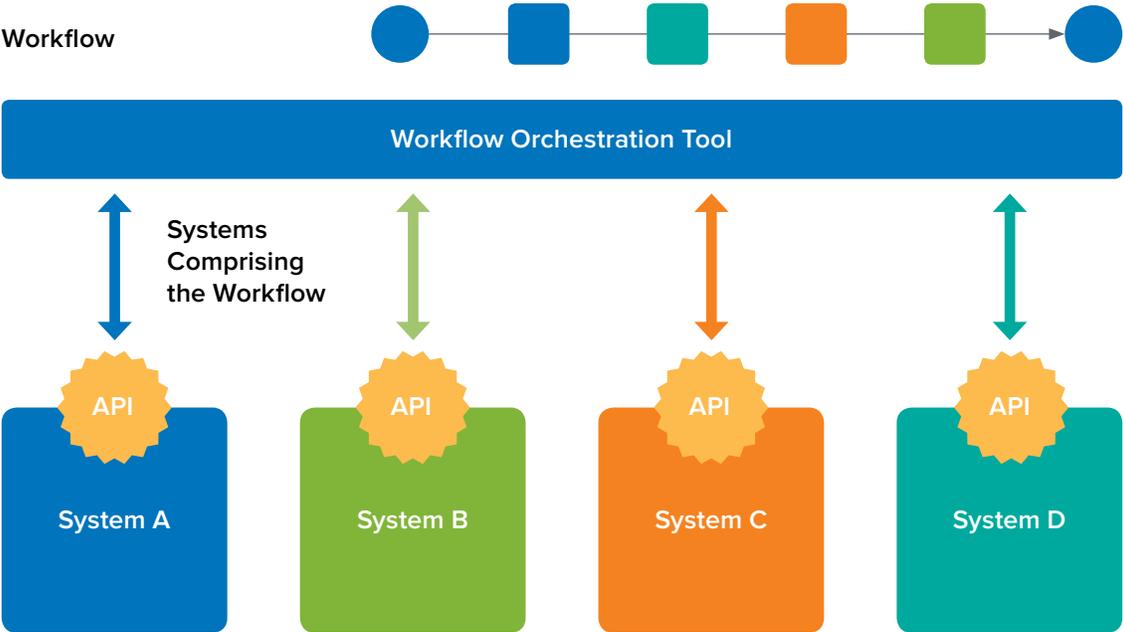
Figure 1 - Workflow orchestration connects a workflow with the systems that complete its steps

Workflow Orchestration Use Cases

IT Central Station members are putting workflow orchestration solutions to work. For example, an IT staffer at a company with over 1,000 employees uses Control-M "to automate batch processing, create automated workflows to support various applications, and integrate various endpoints in the workflow to support business processes." A database security specialist at a manufacturing company with more than 10,000 employees uses Control-M for batch recovery and job processing.

An e-business engineer at a financial services firm with over 1,000 employees explained how his batch processing orchestration works on Control-M. He said, "We are receiving files from another system, then we use the File Watch Utility (because we have no view into the other system and how it works). However, when files arrive on certain servers, we're able to pick them up and trigger further downstream processes from them."

To get a sense of the scale of some of these operations, consider that a Control-M analyst at a retailer has a daily schedule that includes about 4,000 jobs, with around 42,000 iterations of jobs. A system admin and architect at a financial services firm with over 1,000 employees shared that his team does up to a million jobs a day. He commented, "With Control-M, there is visibility into it. There are notifications when things go wrong. I don't think our company could run without it." This user is also putting Control-M into his company's DevOps workflow.

Benefits of Workflow Orchestration

Workflow orchestration confers a number of technical and business benefits on organizations that adopt it. As the database security specialist at the manufacturing company shared, "Control-M has been there in back of all automated work lists by providing consistency, timely execution, and removing chances of human errors." The financial services system admin and architect felt that Control-M had improved his application reliability and Service Level Agreement (SLA) performance.

A VP of Control-M scheduling at a financial services firm with over 1,000 employees noted, "It saves us time. Instead of 800 applications internally doing their own thing, we centralize it into one location where there are notifications." He added, "It saves us money for sure. We turned a company of mom-and-pop little fiefdoms all over the place into a company where things are centralized in one location."

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Best Practices and Product Selection Factors

The IT field is no longer in the first generation of workflow orchestration tools. As the technology evolves, IT professionals are able to offer best practices and suggestions for what now comprises an effective solution. IT Central Station members have commented on their experiences with Control-M in this regard. Their insights include ideas like paying attention to organizational issues, working across platforms, consolidating solutions and more.
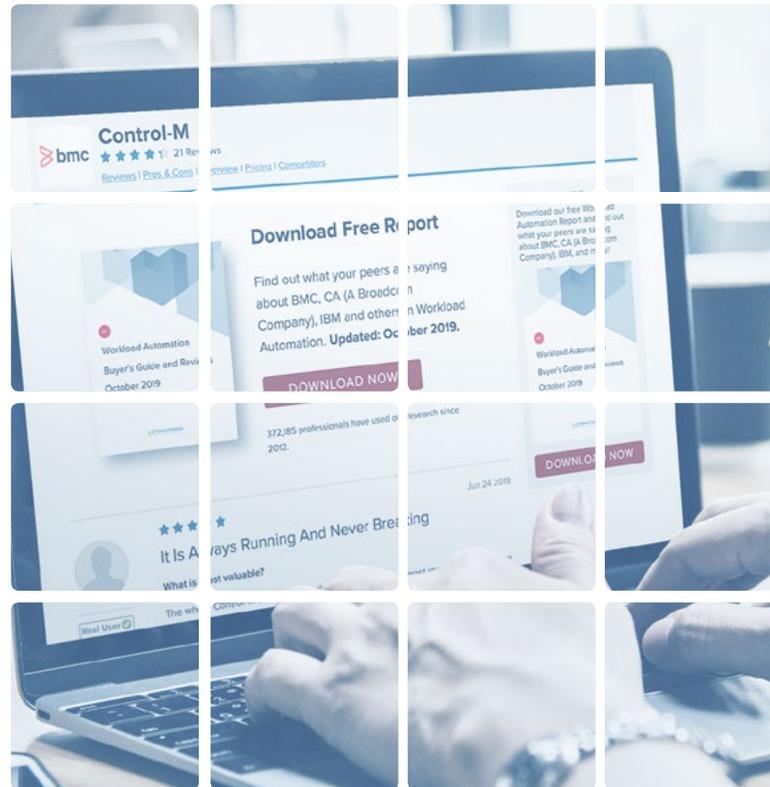
Pay Attention to Non-Technical/ Organizational Issues

Workflow orchestration does not exist in a vacuum. To work effectively, it should be viewed in the broader organizational context. For instance, as a digital solutions manager at a transportation company with more than 10,000 employees observed, "Some of our folks on the distributed side of things need to learn how to use Control-M effectively in regards to output when tasks or jobs fail. They need to give us smarter outputs, so we can resolve things more quickly." In this case, the two groups need to collaborate better to make the most of the Control-M toolset.

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Similarly, the IT staffer praised Control-M's auto-edit variable resolution for use in the planning stage of a workflow. He said, "This feature allows developers to better understand the schedule, and allows them to correct any potential issues in advance." Again, developers and IT staff do better when they can work together through the tool. A principal IT data research and mining analyst at a healthcare company further noted that it's important to have "an advanced strategy around how development [using Control-M] is going to take place." As he put it, "If each team is doing their own thing, it's hard to manage it."

Take Advantage of Notifications

Workflow orchestration solutions come with sophisticated notification capabilities. The best practice is to take full advantage of this feature. Doing so results in better awareness of job status and greater overall IT productivity. Figure 2 highlights this practice, along with other recommended ways to get the most out of a workflow orchestration tool. Other comments on notifications from IT Central Station members included:

- "[Control-M's] most valuable feature would be the ability to detect and notify when a process has not completed successfully." - Automation specialist at a financial services firm with over 5,000 employees

- "Maintaining and monitoring of workloads have been and continue to be the most valuable feature in our environment. There is a batch monitoring tool called Batch Impact Manager, which proactively warns when processing is behind and SLAs are in jeopardy of being missed." - Operations manager at a retailer with more than 10,000 employees

- "If a job fails, that development team is notified right away, which improves reliability. Previously, it was on the operators to notify the developers that their job failed, erred, or aborted. Now, it's all automated." - Data center operations supervisor at a non-tech company with over 1,000 employees

- "Because it's a tool which allows us to do scheduled work, it allows for notifications when jobs aren't running within that scheduled time frame. This improves the opportunity to meet SLAs." - Manager of digital solutions at a transportation company
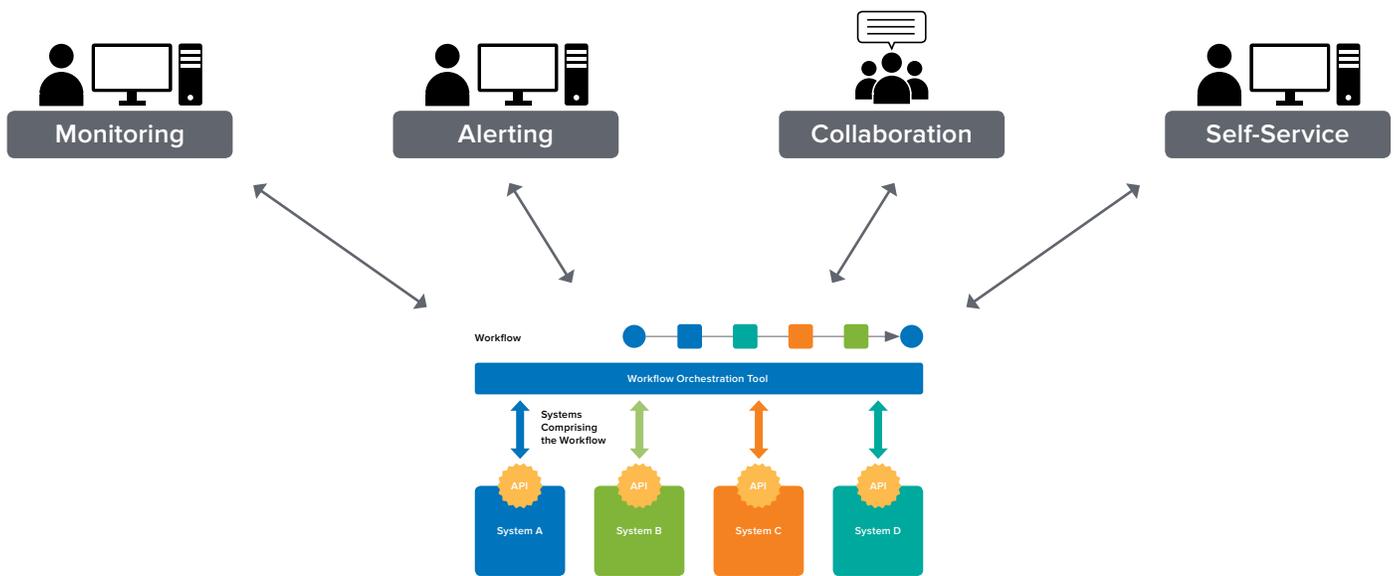
Figure 2 - Some of the best practices recommended by Control-M users include leveraging the toolset for monitoring, alerting, self-service and collaboration between multiple internal groups

Work Across Platforms

Working across platforms emerged as a best practice in Control-M reviews. An operations manager at a tech services company with more than 10,000 employees shared, "Cross-platform scheduling has transformed how we run our estate workload. It is just so much more efficient now as we can tie together all the workloads across the estate and make the whole process reactive to events."

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A senior operations analyst at an insurance company with over 1,000 employees also commented, "This product works with all the platforms that we use today. We're able to

centralize our managing of job flows for all our platforms. That's how it really helps us." For the database security specialist at the manufacturing company, the advantage of Control-M comes from its flexibility to schedule the jobs on various OS-level platforms. In his case, usability was enhanced by the tool's agent-level architecture.

Leverage Functionality for Flexibility, Ease of Use and Self-Service

Usability and self-service are two major innovations in the workflow orchestration category. The technology isn't (or shouldn't be) the exclusive preserve of command line experts. IT Central Station members therefore recommend that users of workflow orchestration tools take full advantage of features for flexibility, ease of use and self-service. A head of IT procurement at a renewables and environment company was

pleased that Control-M lets his users access the system and schedule their own jobs, for example. A production engineer at a small tech services company chose Control-M because it was user-friendly.

Other comments in this vein included:

- "Unlike the batch controls of other solutions, BMC [Control-M] includes a graphical user interface (GUI)." - Co-founder of a small company

- "I love the usability. It works." - Data center operations supervisor at a non-tech company

- "The most important features are that it is easy to use and graphical, since I'm a graphical person. This allows me to see it on the screen. I've used other scheduling tools, and the information wasn't there. Being able to see the jobs that connect to another job is really important to me. It is very flexible and dynamic." - Control-M analyst at a retailer

Consolidate Solutions When Necessary

Given that the goal of workflow orchestration is greater efficiency and productivity, it makes sense that system users recommend consolidating solutions when necessary— and when possible. As the retail operations manager explained, "When we first started using Control-M, we had multiple scheduling solutions across several platforms. Going to Control-M consolidated all of them and allowed us reactivity across all of them based on the completion of processing."

The financial services system admin and architect offered a good example of how consolidation can work. He said, "Oracle database backup teams

used to do this all themselves via Cron. Now, they have automated Cron to Control-M for a lot of our database backups where they used to do this outside of Control-M." The VP of Control-M scheduling had a similar approach to Oracle database backups.

Look for Remote File Management Capabilities

Remote file management is a feature to consider when selecting a workflow orchestration solution, according to Control-M users. This was on the mind of an IT staffer at a healthcare company with over 1,000 employees, who praised Control-M for its ability to manage files remotely. He was also pleased with Control-M's wide range of connectors.

The production engineer laid out his remote file handling use case by saying, "We have many feeds coming in from different companies which are used by the business for various reasons and we must collectively have a central point to gather the files and feeds. We also use Control-M

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> ### I love the usability. It works.

for encryption, decryption, and sending data across to different business users that begin at a point of time, and making sure that we are not missing unnecessarily." He felt that Control-M's file management feature was "a real help." As he described, "We have a lot of business which depends on feeds which, if not properly processed, affects the stock exchange. So, Control-M acts as a mediator in between that and provides it in a very efficient way. This has reduced a lot of manual intervention required as a business."

Automate As Much As Possible

The orchestration of workflows overlaps with workflow automation. The two concepts are related, though different. Orchestration refers to the sequences of actions between systems. Automation in this context usually means the running of the orchestrated sequences with little or no user involvement, i.e. on a preset schedule.

IT Central Station members recommend using whatever automation features are available to the greatest extent possible. As the data center operations supervisor revealed, "Automation is its [Control-M's] most valuable feature. It comes down to if you schedule a job, then it runs on its own. You don't need to have an operator manually start a script, start a mainframe job, etc." The e-business engineer also expressed admiration for Control-M's ability to go from one system to another, triggering actions in the process.

Other reviewers had comparable insights:

- "[The value comes from] the opportunity to automate work so you have an audit trail, especially with governmental requirements in a regulated industry, such as the airline industry. It's really important that we have that audit trail." - Manager digital solutions at a transportation company

- "We are automating more things. I sometimes hear an application team say, 'We are running this manually, and we want to make it automated.' I will make a few jobs to save them from doing what they are doing manually and automate it. I am always looking for more things to automate." - Control-M analyst at a retailer

- "We value Control-M mainly for the ability to control multiple nodes in a coordinated manner.

Control-M has the ability to really coordinate across a lot of nodes. That's the most valuable thing." - Team lead at a transportation company with over 5,000 employees

Do Maximal Monitoring

Job monitoring comes up as a factor in selection of a workflow orchestration tool, as the financial services system admin and architect noted. He said, "Monitoring is a valuable aspect of it.

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The monitoring tool is very good, and it is easy for expert and entry-level users to use on a short notice.

The monitoring tool is very good, and it is easy for expert and entry-level users to use on a short notice." The operations manager at the retailer concurred, saying, "Maintaining and monitoring of workloads have been and continue to be the most valuable features in our environment." To him, these features were important because they "proactively warn when processing is behind and SLAs are in jeopardy of being missed."

Seek reliability

Control-M users praised the solution's reliability, which is another selection factor for a workflow orchestration tool. According to the insurance company senior operations analyst, "It's very stable. It's continuously running - we're a 24/7 shop." For the Control-M analyst at the retailer, "Control-M is always running and never breaking. I always tease server people about rebooting, since my application is always running."

Implementation Tips

IT Central Station members also offered tips on the implementation of a workflow orchestration tool. A technical consultant at a small tech services company advised, "Make use of outsourced software solutions such as Atgen for ensuring a stable setup process." The Control-M analyst at the retailer did an upgrade, where BMC helped with implementation. He shared, "The upgrade process is great. They [BMC] have a whole department with their AMIGO program, where you can have someone walk you through it. We have upgraded to 9.18. When we go to 9.19, it will be real quick. It should be almost hands off from what I understand."

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Upgrade, Licensing and Pricing Tips

Control-M users also shared insights into licensing and pricing. The healthcare principal, IT data research and mining analyst provided a high-level perspective on this subject. He said, "My most important criteria when selecting a vendor, in this case, since it's a mature product, would be ease of migration." The technical consultant at the small tech services company discussed how to save money by consolidating to Control-M. Control-M's efficiency enables users to do the same amount of work with fewer jobs. As a result, he offered the following savings tip: "Select more job-based pricing options as Control-M has less jobs to offer."

For the production engineer at the small tech services company, the issue was which controller modules will help enhance the work. He explained that the choice of modules will "ultimately transform their work into an automated solution, which in turn will reduce

their cost." He further recommended, "First, check which modules are really required and also what kind of licensing makes sense for their [client's] business. If it's a very large enterprise then it would be great to use a premium based license. If not, it's better to use a job count based license. So that is a point which they should check before implementing."

CONCLUSION

IT departments today are developing new approaches to getting the most out of workflow orchestration solutions. The fundamental benefits of the technology are well understood. Now, it's about gaining maximum advantage from the solution that powers the orchestration. To this end, IT Central Station members offer insights and best practices. They advise users to look at areas where the toolset spans different groups in the organization and factor the resulting (or potential) collaboration into the use case.

Control-M users also recommend taking full advantage of features like notifications, monitoring, self-service, file management and automation. Working across platforms is a good practice, if possible, as is consolidating workloads. These contribute to greater IT department productivity. Workflow orchestration continues to deliver benefits to the IT department. By following these tips and best practices, it is possible to gain even greater efficiencies and subsequent business outcomes.

ABOUT IT CENTRAL STATION

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The Internet has completely changed the way we make buying decisions. We now use ratings and review sites to see what other real users think before we buy electronics, book a hotel, visit a doctor or choose a restaurant. However, in the world of enterprise technology, most of the information online and in your inbox comes from vendors when what you really want is objective information from other users. IT Central Station provides technology professionals with a community platform to share information about enterprise solutions.

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ABOUT BMC

BMC is headquartered in Houston, Texas, and was founded in 1980. KKR acquired BMC from a group led by Bain Capital and Golden Gate Capital in 2018. Since going private, and then changing hands to a new private equity firm, BMC enhanced its leadership ranks with many industry veterans. The current focus for Control-M centers around end-to-end orchestration across multiple clouds, simplifying and scaling data pipelines, and supporting DevOps. Control-M became part of BMC's portfolio through the acquisition of New Dimension Software for $673 million in 1999.