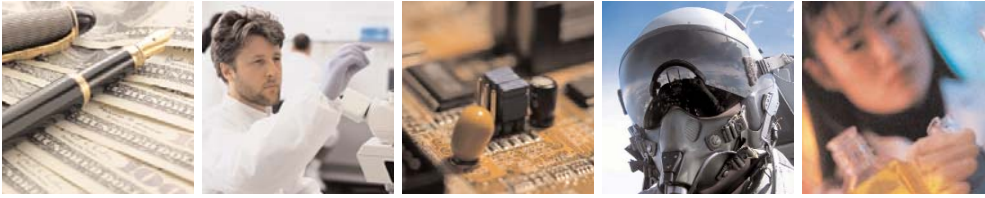


Global Massachusetts 2015

Executing a Talent and Innovation Sector-Based Strategic Plan



Massachusetts: Innovation Gateway—Global Education Center

WHITE PAPER

Massachusetts Community Colleges:

*Creating a World-Class System Aligned
with Employer Needs*

Mass Insight Corporation
February 2007

ACKNOWLEDGEMENTS

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Mass Insight Corporation, based in Boston, MA, is a research and consulting firm that seeks to keep Massachusetts and its businesses and institutions globally competitive. The firm focuses on talent and innovation-based economic development and builds strategic alliances between higher education, industry and government, both regionally and globally.

Mass Insight organizes collaborative leadership initiatives and uses communications, publications, policy research and public opinion surveys to shape public-private actions and develop innovation partnerships. Our clients, partners and sponsors represent a range of sectors, including universities, financial institutions, IT/communications, life sciences, defense, utilities, professional firms, nonprofits and foundations, trade organizations, and state agencies.

Mass Insight Education and Research Institute is a nonprofit affiliate which organizes public school and education reform initiatives to raise math and science achievement and turn around failing schools. To learn more, visit www.massinsight.com.

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Executive Summary

A pipeline of well-trained supporting talent is critical to maintaining economic competitiveness in a global economy. It is particularly critical for a high-cost location like Massachusetts that seeks to attract and retain middle-class jobs. Creating this pipeline will require a community college system that is integrated with the Commonwealth's K-12 and higher education systems, as well as industry needs.

The Massachusetts Community College Mission Statement describes the colleges' multiple aims. They must simultaneously:

- Provide access to higher education
- Work with business to provide workforce training
- Focus on graduation rates and sending students to four-year institutions.

Industry, higher education mismatch

Of the nearly 75,000 positions that were vacant in Massachusetts as of the fourth quarter of 2005, almost 40 percent required at least an associate's degree. Health care had the most vacancies (21 percent of the total). Job vacancies were increasing faster than the state average in the financial and insurance industry and among managerial, professional and technical workers, where quantitative skills are at a premium.

To optimize their effectiveness, community colleges must be treated as part of a continuum of learning that goes from kindergarten through higher education and employment. This requires aligning curricula with both industry needs and the Commonwealth's K-12 education system.

Coordinated strategy needed

Our community colleges exemplify the tradition of local control and autonomy that runs deep in Massachusetts. But a decentralized system need not be disjointed. The Board of Higher Education, which oversees community colleges, should set system priorities related to a statewide economic development strategy, with the trustees that govern each campus determining the best way to execute the overall priorities locally.

Funding challenges undercut performance

State funding for community colleges is below 2001 levels, even before accounting for inflation. Legislation that has passed the Senate and is pending in the House would provide full funding under the current formula within five-to-seven years. The formula is now under-funded by about \$400 million for state and community colleges. Community college leaders are generally not opposed to tying a portion of funding to performance measures such as graduation rates, percent-

Massachusetts Community College Facts	
Number of colleges	15
Total Students	205,000
Students taking credit courses	115,000
Students taking non-credit courses	90,000
Students in degree programs	75,000
- Full time	41%
- Part time	59%
Tuition and Fees	Vary by institution
Degree students in each college receiving financial aid	35-62%

age of students going on to four-year institutions, industry satisfaction with workforce training programs and alignment with local economic needs, but they believe a basic funding threshold must first be achieved. Parties should agree now on a mechanism to tie funding to performance once a pre-determined funding level is reached.

Almost half of the students served by Massachusetts community colleges are in non-degree workforce training programs. The Commonwealth only recently began providing a state match for funds generated by such programs, and it is still up to the colleges to find the resources to develop programs that respond to local workforce training needs.

Management flexibility needed

Statewide contracts currently make it impossible for community college presidents to use differential compensation packages to attract faculty that are particularly excellent or teach in hard-to-recruit areas such as nursing. Day and evening faculty are also in different collective bargaining units covered by separate contracts, making it inconvenient for faculty to split their teaching load.

Creating a Massachusetts community college system that is integrated with industry needs and an overall economic development strategy requires a single point of contact for companies looking to locate or expand in Massachusetts, and a clear role for community colleges within a statewide workforce training strategy. Improved governance, increased funding linked to systemic reform and enhanced flexibility are needed to achieve these goals.

The following recommendations would improve Massachusetts community colleges and result in better alignment with economic needs.

Governance

- Link overall system goals with statewide economic development strategy.
- Create a single point of contact for businesses looking to the community college system for workforce training.

Systemic Reform

- Align curricula with K-12 system.
- Eliminate funding and bureaucratic roadblocks to developing and implementing programs to meet the needs of industry.
- Increase on-line and weekend course offerings.

Funding

- Increase overall funding, with particular focus on system priorities.
- Agree up front on a mechanism to tie additional funding to achievement of performance measures once baseline increases are in place.
- Create financial incentives for workforce training programs.
- Increase capital funding to expand and improve facilities.
- Increase funding for equipment needed to provide hands-on technical training.
- Increase funding for academic counseling and tutoring to increase retention.

Linking Community Colleges to Economic Development: The North Carolina Experience

North Carolina provides an interesting contrast to Massachusetts. In addition to funding ongoing workforce training efforts, that state gives its community college system access to a \$20 million pool of funds for new workforce training. The state guarantees companies will get what they need - and it foots the bill.

North Carolina's 58 community colleges are part of a statewide pre-K-university education strategy in which each entity has clear responsibilities. Community colleges are the centerpiece of state workforce development efforts and receive the funding they need to succeed. Much was made in Massachusetts economic development circles about the convening of state and community college presidents as part of the successful effort to land a Bristol-Myers Squibb manufacturing plant at Devens last year. Rather than being viewed as part of an exceptional effort, community colleges are routinely at the table whenever North Carolina courts new business.

It is imperative that Massachusetts institutionalize the Bristol-Myers Squibb effort and provide one-stop shopping for companies interested in locating or expanding here. Doing so requires replicating the North Carolina model by creating a clear role for community colleges within an overall pre-K – university education and workforce strategy.

In addition to BioNetwork (see introduction), the North Carolina community college system runs a New and Expanding Industry Training (NEIT) program that provides an incentive for business location and expansion. In 2005, the program trained almost 12,400 people, an increase of more than 20 percent over 2004. More than 90 percent of the businesses involved reported being satisfied with the training.

North Carolina has three or four centers that house training equipment, which is delivered to the training site and returned to the center upon the community colleges' request. Massachusetts community colleges have no equivalent "system" resource. When Bristol Community College was conducting workforce training in Attleboro, it had to put the equipment needed to conduct the training (it had just one piece of the equipment) into a van, drive it to Attleboro, then drive it back after the session was completed. The lack of equipment sharing is an example Massachusetts community colleges operating as separate entities rather than a unitary system.

- Eliminate problematic funding provisions, such as the Commonwealth's prohibition on funding evening and weekend classes, which complicates splitting teaching loads between day and evening.

Flexibility

- Facilitate ability to offer competitive compensation for faculty in high-need disciplines such as nursing.

Introduction

In an increasingly global, knowledge-based economy, technological innovation is often driven by elite scientists and engineers. But translating scientific breakthroughs into economic growth and jobs requires scores of trained technicians for every academic “star.” World-class supporting talent is a necessity for a high-cost location like Massachusetts to successfully compete for middle class jobs. That, together with the fact that up to 85 percent of Massachusetts public higher education students stay here upon graduation, is why community colleges and the talent pipeline they provide are so critical to our economic success.

North Carolina’s pharmaceutical and biomanufacturing industries have enjoyed a recent boom. More than two-thirds of the state’s pharmaceutical and biomanufacturing employees have less than a bachelor’s degree. Much of the fuel for that success has come from its “BioNetwork,” a program of the state’s community college system to develop a world-class biotechnology workforce.

In 2000, Massachusetts residents holding an associate degree earned about 19 percent more than high school graduates on average. Similar gains accrue to graduates of one-year certificate programs. Using Licensed Practical Nursing graduates from Northern Essex Community College as an example, Commonwealth Corporation found that the average graduate of the program would

In 2000, Massachusetts residents holding an associate degree earned about 19 percent more than high school graduates on average.

realize an earnings premium of almost \$132,000 over 20 years, while the Commonwealth would receive more than \$24,000 in incremental tax revenue over that time. The cost of educating the

hypothetical student would be about \$7,700, resulting in a return on investment of more than 300 percent.

Massachusetts Community Colleges

The Massachusetts Community College Mission Statement describes the colleges’ multiple aims. They must simultaneously:

- Provide access to higher education.
- Work with business to provide workforce training.
- Focus on graduation rates and sending students to four-year institutions.

This paper will look at the current system in terms of governance, funding, alignment with industry needs, and quality and flexibility, and will make recommendations for improvement.

Creating a single system

Our 15 community colleges are another example of the tradition of local autonomy and control that runs deep in Massachusetts. The state Board of Higher Education (BHE) oversees community colleges, but each college has its own board of trustees. Some also have advisory boards. These bodies often attach varying priorities to the multiple goals of access, workforce training, and graduation and transfer to four-year institutions. In addition to BHE and local boards, the community colleges themselves have set up an Executive Office of Community Colleges to provide a single entity to distill and work for system priorities. Multiple goals and priorities make it difficult for community colleges to have a clear picture of exactly who they serve. Better data would make it easier to define different constituencies and identify which are being served elsewhere and on which the community college system should focus its efforts.

Critics often bemoan this decentralized governance system, saying it is disjointed and results in unclear responsibilities and lines of authority. But many in the system argue that the model is work-

able. They see BHE's role as setting broad priorities for the system that ideally are related to a statewide economic development strategy, with the trustees that govern each campus determining the best way to execute the overall priorities locally. The lack of a statewide economic development strategy over the last decade has resulted in less clarity regarding system priorities.

One shortcoming of the decentralized governance system is bringing effective pilot programs to scale. There is no single entity that can implement programs system-wide. The problem has been exacerbated by chronic funding shortages.

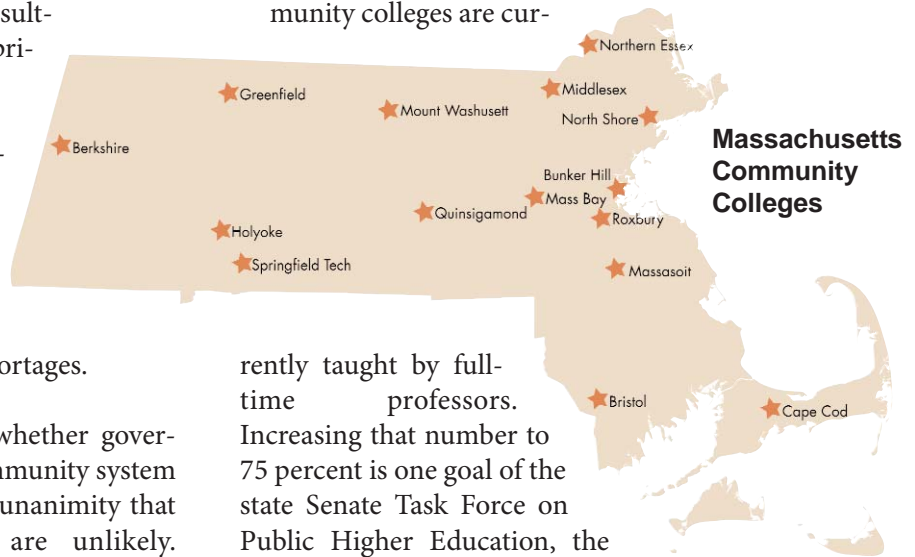
There are differing opinions on whether governance of the Commonwealth's community system should be overhauled, but virtual unanimity that major organizational changes are unlikely. Another approach is to tie a portion of funding to performance measures to provide incentives for excellence. Metrics could include graduation rates, percentage succeeding at four-year institutions and employment, industry and individual satisfaction with workforce training programs, alignment with local economic needs, and collaborative partnerships between colleges and with industry. Community college leaders are generally not opposed to such measures, but believe they cannot realistically be instituted until a basic funding threshold has been achieved. The legislature and BHE have adopted performance measures, but they are not currently tied to funding. Even as leaders work to restore system funding, they should agree on a mechanism that ties funding to performance once a pre-determined funding level is reached.

Funding

State funding for community colleges is still below 2001 levels, even before accounting for inflation.

Today, the Commonwealth funds only about 40-45 percent of community college operations.

One result of the funding shortfall is what some see as over-dependence on part-time faculty. No more than half the classes in Massachusetts community colleges are cur-



rently taught by full-time professors. Increasing that number to 75 percent is one goal of the state Senate Task Force on Public Higher Education, the report of which spawned legislation that has passed the Senate and awaits action in the House. Others argue adjunct faculty provide much-needed flexibility that can't be achieved with full-time professors due to restrictive collective bargaining agreements (see "Flexibility" section below) and that practitioners have an important role to play in community college education. In the final analysis, community colleges should be judged on outcomes, not inputs like percentage of classes taught by full-time faculty.

One shortcoming of the decentralized governance system is bringing effective pilot programs to scale. There is no single entity that can implement programs system-wide.

The pending legislation would fully fund the current formula over five-to-seven years. Right now, the formula is under-funded by about \$400 mil-

lion for state and community colleges. Future appropriations can't be guaranteed, but the legislation would provide a "path to predictability" by making a public statement about increased funding. The legislation would also create incentives for efficiency by allowing campuses to retain tuition.

Massachusetts community colleges are also under-utilized compared to other states. A 1997 MassINC study found 1.3 percent of Massachusetts residents enrolled in community colleges, compared to a national average of 2.1 percent. Interviews confirmed that this has not changed dramatically in the intervening nine years. Despite under-utilization, our community colleges face space and facility constraints. The combination of under-utilization and facilities shortages suggests long-term capital under-investment in addition to cuts in operating funding.

Under-investment has also hampered efforts to attract the most qualified faculty and staff. Despite the Commonwealth's high-cost of living, community college wages here are generally below national averages. Massachusetts faces a nursing shortage, but economics have hampered the community colleges' ability to address the issue. Nurses, who must have a masters degree to teach in a community college, can make about \$80,000/year "on the outside," while community colleges can only pay them about \$40-60,000 to teach.

Alignment with industry needs, four-year colleges, K-12 education

To optimize their effectiveness, community colleges must be integrated with the K-12 system, higher education and industry needs. According to the Massachusetts Department of Workforce Development's most recent Job Vacancy Survey, which was published in June 2006 and covers the last quarter of 2005, the Commonwealth's Job Vacancy Rate is 2.6 percent, a 3.3 percent increase

over the previous year and a much larger jump over 2004, when the vacancy rate stood at 2 percent. The most recent rate translates to 74,305 positions that were vacant due to a lack of skilled workers to fill them. Just under 40 percent of those jobs required at least an associate's degree. Among the state's 20 major industries, health care (21 percent) and retail (19 percent) accounted for the most vacancies. The vacancy rate rose by 9 percent in the financial and insurance industry and by just over 8 percent among managerial, professional and technical workers.

State funding for community colleges is still below 2001 levels, without accounting for inflation.

Among the occupations with a high percentage of job openings that might be filled by community college graduates or certificate holders are:

- Registered Nurse
- Licensed Practical Nurse
- Radiologic Technologists and Technicians
- Diagnostic Medical Sonographers
- Respiratory Therapists
- Physical Therapy Assistants
- Dental Hygienists
- Emergency Medical Technologists and Paramedics
- Medical Records or Health Information Technicians
- Surgical Technologies
- Investment Fund Accountants

Funding shortages also hamper the colleges' ability to improve alignment with industry needs. With less than half of their operations funded by the state, the colleges have had to increase tuition and fees. Since public funding only covers core operations, less money is available for evening and weekend programs that often fit the schedules of working people planning to improve their skills.

Much of the work of community colleges comes in the form of non-degree workforce training programs. Massachusetts community colleges currently serve about 115,000 for-credit students and 90,000 non-credit students. In North Carolina, for example, the funding formula takes these non-credit students into account. Here, Workforce Training Incentive legislation only recently provided an incentive for non-credit training. The legislation created a state match of up to 20 percent for funds community colleges generate from non-credit workforce training programs. The match is subject to appropriation and has been funded at between \$2.3 and \$2.9 million annually. Out of that money, each community college uses \$50,000 to fund a workforce training position. The pending higher education legislation would make for-credit workforce training courses eligible for the match.

Massachusetts community colleges must use their own resources or rely on the uncertainty of federal grants to figure out what companies need, develop curriculum and hire instructors. Middlesex Community College recently received a federal grant to create a radio frequency technology lab that will fill a workforce training need.

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That success made it unlikely that Middlesex, working together with National Grid, would capture another pending federal grant that would allow for the creation of a needed program to train energy workers. To their credit, Middlesex and National Grid beat the odds and were awarded the second grant, but relying on federal grants to fund workforce training programs remains uncertain at best.

Alignment with K-12 education and four-year colleges

Integration with K-12 education requires thinking systemically about community colleges as one part of a continuum of learning that goes from kindergarten through higher education and employment. Community colleges have a particularly challenging role, since they must serve both recent high school graduates aspiring to transfer to a four-year institution and adults seeking enhanced job skills while maintaining the goal of providing access to higher education.

Today, there are over 100 formal articulation agreements between more than 30 private colleges in Massachusetts and the Commonwealth's 15 community colleges. These programs allow community college students to access the full range of academic programs that are critical to the state's economy.

Amherst and Mount Holyoke Colleges have joined with the Jack Kent Cooke Foundation and six other colleges and universities to invest \$27 million in improving access to select four-year institutions for high-achieving, low-income community college students. Financial aid continues to be a barrier to many community college students. In an attempt to address the problem, the Board of Higher Education has recommended a funding increase for the MassGrant program in its fiscal 2008 budget request.

Quality

Multiple missions make it difficult to measure the comparative quality of Massachusetts community colleges. Graduation rates provide one obvious measure, and there we rank in the middle compared to other states. But since full-time degree students hoping to graduate within three years make up just a small percentage of the student body at some community colleges, graduation rate alone is an imperfect measure.

One might also expect graduation rates to be higher here, since K-12 public education in Massachusetts is arguably the best in the nation. But many community college students are older and there is little data on the students that attend directly from high school.

Despite improvements in K-12 performance, more than half of Massachusetts community college students require developmental courses. Interestingly, graduation rates are higher among students who complete such programs successfully than those who don't require them at all.

Flexibility

In addition to funding, other reforms also hamper community college effectiveness. Day and evening faculty are currently in different collective bargaining units covered by separate contracts, making it inconvenient for faculty to split their teaching load. The Commonwealth does not fund

Statewide contracts make it impossible for community college presidents to provide additional compensation in hard-to-recruit areas such as nursing.

evening and weekend classes. Changing that policy would help solve the problem. A Senate Task Force on Public Higher education targeted this issue for additional study. Statewide contracts make it impossible for community college presidents to provide differential compensation packages to attract particularly excellent faculty, or provide additional compensation in hard-to-recruit areas such as nursing.

Massachusetts Talent Development Bank

A more comprehensive way to align program offerings with industry needs would be to develop a private, non-profit Massachusetts Talent Development Bank, as proposed by the Human Resources Executive Advisory Committee of the Global Massachusetts 2015 initiative.

The MTDB's board would be comprised of human resource executives, representatives of public and private higher education institutions, and appropriate state officials. The board would evaluate industry talent needs by sector through the industry associations and communicate that information to higher education leaders. Armed with the talent forecast, the MTDB could then bundle corporate education and training requirements.

This would be particularly valuable for smaller companies that can't support internal training programs. Collectively, the industry customers would provide collaboratives of higher education institutions with grants or a guaranteed number of students for the new programs developed in response to industry needs.

Recommendations

Over the last decade, several studies have made proposals for improving Massachusetts' community colleges. A 1997 **MassINC** publication recommended reducing tuition and fees, expanding capacity, and using increased funding as a lever for reforms such as creating incentive funds to encourage partnerships with business and more flexibility regarding the deployment of faculty.

In "A Call to Action," **Mass Insight** in 2000 recommended more technical community colleges, overall funding increases, specific increases tied to industry partnerships, streamlining the process for curricular changes that would keep the colleges current with industry needs and the introduction of financial incentives to retain faculty in key technology areas.

A larger public higher education reform proposal from the **Romney administration** in 2003 would have regionalized governance, allowed for tuition retention and distributed funds based on enrollment and performance measures.

Two major 2005 studies addressed community college issues. The report of the **Senate Task Force on Public Higher Education** resulted in currently pending public higher education legislation. In addition to the funding increases mentioned above, the proposal would give BHE a bigger role in identifying workforce trends and adjusting community college programs to address them, make community colleges eligible for all workforce training initiatives and establish a \$1 million funding pool to expand programs in high-demand occupations.

The **Reach Higher Initiative** was a collaboration of the state Department of Workforce Development and more than 50 public, private and non-profit stakeholders. It was facilitated by the Commonwealth Corporation and funded by

the National Governors Association and the Lumina Foundation for Education. The initiative focused on aligning academic offerings with economic needs, with particular attention given to nursing and technical allied health education. It also recommended additional hands-on learning, weekend, evening and online offerings.

The Boston Foundation plans to publish a community college study in February 2007.

Creating a Massachusetts community college system that is integrated with industry needs and an overall economic development strategy requires a single point of contact for companies looking to locate or expand in Massachusetts, and a clear role for community colleges within a statewide workforce training strategy. Improved governance, increased funding linked to performance and enhanced flexibility are needed to achieve these goals. Implementation of the following recommendations would improve the quality of Massachusetts community colleges and result in alignment with economic needs.

Governance

- Link overall system goals with statewide economic development strategy.
- Create a single point of contact for businesses looking to the community college system for workforce training.

Systemic Reform

- Align curricula with K-12 system.
- Eliminate funding and bureaucratic roadblocks to developing and implementing programs to meet the needs of industry.
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Funding

- Increase overall funding, with particular focus on system priorities.
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 - Increase funding for academic counseling and tutoring to increase retention.
 - Eliminate problematic funding provisions, such as the Commonwealth's prohibition on funding evening and weekend classes, which complicates splitting teaching loads between day and evening.

Flexibility

- Facilitate ability to offer competitive compensation for faculty in high-need disciplines such as nursing.

Creating a community college system: What it will take

There are a number of reasons why past recommendations to reform Massachusetts' community college system have not been enacted. Reducing student charges and increasing affordability cost money; taking on rigid labor contracts is difficult — particularly for an overwhelmingly Democratic legislature. In addition, economic times were

The Senate and Reach Higher recommendations reflect a growing awareness of the importance of community colleges to our economic development efforts.

good in the aftermath of the MassINC report — often not an environment conducive to the enactment of sweeping change.

The Romney proposals brought with them their own set of problems. Merging two community

colleges and combining two others with state colleges drew overwhelming resistance, as did the idea of having BHE — not the Legislature — determine how funds would be distributed to individual campuses. The introduction of performance standards into the funding formula also drew opposition. In addition, Romney's plan was derailed by other pieces of the proposal that had nothing to do with community colleges, and by being introduced along with a set of proposals to remove some state administrators from union membership and narrow the scope of collective bargaining rights.

The Senate and Reach Higher recommendations are relatively recent and reflect a growing awareness of the importance of community colleges to our economic development efforts. It is this growing awareness that will ultimately determine the success of these and other reform proposals. Until recently, neither the Legislature nor the Governor made community colleges a priority. The Senate Task Force is evidence of change in the Legislature's view. Whether the public higher education legislation the Task Force spawned passes in the House and becomes law will be a major test of the Legislature's and Patrick administration's commitment.

Our challenge going forward is to raise awareness of the critical role community colleges play in economic development so that the Patrick administration makes it a top priority. That, combined with growing legislative interest in the issue, is what will determine the success of efforts to reform the system.



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