



COMMONWEALTH OF PENNSYLVANIA
PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

Public Investment Memorandum

Tulco, LLC

Special Situations Commitment

James F. Del Gaudio
Portfolio Manager

October 4, 2018



Recommendation:

PSERS Investment Professionals, together with Hamilton Lane Advisors, L.L.C. (“Hamilton Lane”), recommend the Board commit up to \$100 million to Tulco, LLC (“Tulco” or the “Company”), and that the Investment Office shall have discretion to fund follow-on equity rounds in Tulco up to an additional \$300 million, provided that any investment of an additional sum by the Investment Office shall be reported to the Board in a timely manner. The Company is seeking to raise a follow-on round of \$150 million to continue the Company’s strategy of deploying its capital and management expertise in growth-stage companies through the application of data science and artificial intelligence/machine learning.

Firm Overview:

Tulco was founded in April 2017 by Thomas Tull after the 2016 sale of the previous company he founded, Legendary Entertainment (“Legendary”), a media company focused on producing film, television and digital products. The Legendary film catalog includes hits such as: (i) The Dark Knight Trilogy, (ii) 42, (iii) Godzilla, and (iv) Jurassic World. Legendary was sold at an enterprise value of \$3.8 billion. Tulco was formed as an operating holding company that is focused on acquiring growth-stage companies and applying technology to disrupt large, incumbent industry segments that have not fully adopted applied data science and artificial intelligence/machine learning. The Company is headquartered in Pittsburgh, Pennsylvania and also maintains an office in Pasadena, California. Tulco Labs (“Labs”) conducts the Company’s applied data science and artificial intelligence/machine learning operations from offices also located in Pittsburgh, Pennsylvania.

Since inception, Tulco has raised approximately \$188.5 million through two equity rounds (second round in process). Please see table below summarizing dates and amounts raised in each equity round. Tulco is currently seeking an incremental \$150 million at a pre-money valuation of \$800 million to primarily support existing subsidiary companies and future platform acquisitions. Tulco has closed on \$36.5 million to date.

Equity Round	Pre-Money Valuation	Amount Raised	Post-Money Valuation
Initial Rolling Raise (Aug 2017 - Jan 2018)	\$350.0M	\$151.9M	\$501.9M
Second Rolling Raise (Jul 2018 - Ongoing)	\$800.0M	\$36.5M (to date)	Up to \$950.0M (expected)

Market Opportunity:

Tulco has a broad investment strategy seeking to create significant shareholder value through investment and the application of technology in economic sectors which have traditionally experienced low levels of innovation. As such, an ideal investment for Tulco would involve companies: (i) operating in big sectors (e.g. insurance, energy, consumer products/services) within addressable markets that are ripe for disruption, (ii) with high-quality management teams and (iii) with a clear path to \$100 million of revenue within three years of investment.

Tulco’s current investment pipeline evaluation process includes opportunities in several large industry sectors, which, to date, have not experienced meaningful innovation through the application of disruptive technology such as machine learning and artificial intelligence-based applications. Tulco believes that companies in these sectors who innovate before their competition will be positioned to gain a stronghold on the addressable market.



Portfolio Fit:

A commitment to Tulco allows PSERS to establish a relationship with an experienced investment team that possesses deep networks in the technology space. The investment's return target is at the upper-end of PSERS' objective for the Special Situations portfolio with a greater emphasis on cash-on-cash returns (e.g. at least 3.0x multiple-of-capital, or MoC) than specific IRR performance targets. While underlying portfolio investments will be more venture-like, given the growth-stage focus, Tulco will be allocated to the Special Situations sleeve of PSERS' Private Markets portfolio. This allocation decision is based on the differentiated structure of the investment (operating company versus a typical GP/LP fund structure). The table below summarizes PSERS' projected Private Markets exposure inclusive of a recommended \$100 million commitment to Tulco:

Investment Type (\$M)	Market Value	%	Unfunded¹	%	Total Exposure¹	%
Private Equity	\$ 5,162.9	66.3%	\$ 3,961.1	72.2%	\$ 9,124.0	68.8%
Special Situations	1,090.3	14.0%	859.6	15.7%	1,949.9	14.7%
Venture Capital	1,011.4	13.0%	586.2	10.7%	1,597.6	12.0%
PE Internal	519.4	6.7%	79.9	1.5%	599.3	4.5%
Total	\$ 7,784.0	100.0%	\$ 5,486.8	100.0%	\$ 13,270.7	100.0%

(1) As of March 31, 2018. Includes post Q1'2018 pending/closed commitments.

Investment Strategy:

As discussed above, (see *Market Opportunity*), Tulco has a broad investment strategy seeking to create significant shareholder value through investment and the application of technology in economic sectors which have traditionally experienced low levels of innovation. Tulco was founded on the central idea that artificial intelligence ("AI"), machine learning and robotics are fundamentally remaking the world and will have enormous impact on all economic and social activity. Since these technologies will force change across the entire landscape, Tulco was designed to exist in the midst of that disruption upon this basic thesis: expert management and operational skill in combination with applied AI and machine learning techniques will accelerate the growth and value of Tulco's subsidiary companies far beyond what could otherwise be attained. As such, an ideal investment for Tulco would involve companies: (i) operating in big sectors within addressable markets that are ripe for disruption, (ii) with high-quality management teams and (iii) with a clear path to \$100 million of revenue within 3 years of investment. Once identified, Tulco seeks to acquire a majority voting and economic stake in the company and to transform its operation by application of technology.

Tulco targets growth-stage companies and maintains the ability to invest in pre-revenue companies through a buy-and-build approach. Tulco seeks to make control investments across its portfolio and leverages Tulco Labs to develop tailored AI and machine learning solutions. Tulco intends to create additional value by pursuing accretive acquisitions to expand portfolio companies' product offerings and geographic presence. Tulco will focus on a select few number of companies (four to six total platform investments) located in the broader U.S., but seeks to primarily maintain an increased focus on companies located in the Pittsburgh area. Tulco anticipates extended holding periods for underlying investments (i.e. up to seven years versus five years for a typical private equity fund) since growth initiatives typically take longer for earlier stage opportunities. Tulco primarily seeks to position companies for an exit through an IPO or M&A process during its ownership. However, given the operating company structure of the Company (versus a typical GP/LP fund structure), greater exit optionality exists since the entire Company could itself be sold or taken public.



Investment Instruments:

Tulco invests in private companies primarily through a combination of common equity, preferred equity and convertible debt. Tulco does not have any restrictions on the types of securities or instruments it can use for investment and specific investments may make use of features such as earn-outs and warrants.

Investment Structure:

As discussed above (*see Portfolio Fit*), Tulco is structured as an operating company as opposed to a typical GP/LP fund structure. Therefore, Tulco does not operate with an identified fund term and has the ability to use its discretion for underlying investment holding periods and exit timing. As such, Tulco typically avoids specific IRR or other time-based performance targets and instead focuses on investments that have significant cash-on-cash return potential (e.g. at least 3.0x MoC). Given Tulco's growth-stage company focus, it is not anticipated that companies will utilize financial leverage beyond supporting normal working capital needs. At the Tulco operating company level, debt is also not expected to be utilized.

Investment Team:

Tulco is a Delaware limited liability company, and is managed by a Board of Directors (the "Board"), like nearly every publicly traded company. The Board consists of 5 members: two (2) of whom are appointed by Thomas Tull and three (3) of whom must be "independent" and approved by the majority vote of all shareholders. Current members of the Board include, Thomas Tull (Chairman & CEO, Tulco, LLC), Martin Willhite (Vice Chairman, Tulco, LLC), James Breyer (CEO of Breyer Capital, a global venture capital firm), General Michael Hayden (retired four-star general who served as director of the Central Intelligence Agency and the National Security Agency), and A. G. Lafley (retired Chairman, President and CEO of The Procter & Gamble Company). So constituted, the Board delegated day-to-day operating authority to Thomas Tull and the other executive officers. All material operating decisions are first vetted and recommended by Company management and then approved by the Board.

Since its April 2017 inception, Tulco has filled key positions in its investment, finance and operations groups, hiring executives with experience at public companies and major business consultancies. Thereafter, Tulco settled into further developing the capabilities at Tulco Labs, exploring potential investment opportunities and establishing Tulco's day-to-day financial reporting and infrastructure.

The table below summarizes the experience of Tulco's key professionals and head of Tulco Labs:

Name	Title	Yrs. Experience	Prior Experience	Educational Background
Thomas Tull	Chairman & CEO	25	<ul style="list-style-type: none"> • Legendary Entertainment: Founder, Chairman and CEO (2004 – 2016) • Tull Investment Group (family office): Founder (2004 – 2016) 	<ul style="list-style-type: none"> • Hamilton College: BA
J. Martin Willhite	Vice Chairman; Director	20	<ul style="list-style-type: none"> • Legendary Entertainment: COO & General Counsel (2011 – 2017) • Munger, Tolles & Olson LLP: Attorney (1999 – 2011) • Milbank, Tweed, Hadley & McCloy LLP: Associate (1997 – 1999) 	<ul style="list-style-type: none"> • Loyola Law School: JD • Brigham Young University: B.A.
Matthew Devost	EVP – Strategy & Operations	22	<ul style="list-style-type: none"> • Accenture - Managing Director and Global Cyber Defense Practice Lead (2015 – 2017) • FusionX – Founder and CEO. (2010 – 2015; Acquired by Accenture in 2015) • Special Advisor – US Department of Defense (2010 – 2013) • iSIGHT Partners – Chief Operating Officer (2009 - 2010) • Total Intelligence Solutions – President (2006 – 2008) • Terrorism Research Center - Founder and CEO (1996 – 2008; Company acquired in 2006 by EP Investments) • Georgetown University – Adjunct Professor in Computer Science Department (2002 – 2016) 	<ul style="list-style-type: none"> • University of Vermont, M.A. in Political Science (national security) • St. Michael's College, B.A. in Political Science, Minor in Computer Science



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Name	Title	Yrs. Experience	Prior Experience	Educational Background
Daryl Crone	EVP – Business Development	18	<ul style="list-style-type: none">• Crone Hawxhurst LLP: Attorney; Co-founder (2011 – 2017)• Baker Marquart Crone & Hawxhurst LLP: Attorney; Co-Founder (2006 – 2011)• Quinn Emanuel Urquhart & Sullivan LLP: Attorney (2000 – 2006)	<ul style="list-style-type: none">• Harvard Law School, J.D.• University of Virginia, B.A.
Jeffrey Miller	Senior Vice President	9	<ul style="list-style-type: none">• Legendary Entertainment: Senior Vice President – Corporate Counsel (2014 – 2017)• Skadden, Arps, Slate, Meagher & Flom LLP: Attorney (2009 – 2014)	<ul style="list-style-type: none">• Columbia Law School: JD• University of California, Los Angeles: B.S. in Mathematics and Economics
Maureen Gaj-Cappello	Senior Vice President	8	<ul style="list-style-type: none">• McKinsey, Chemicals Practice (2013 – 2015)• Nexant (2010 – 2012)• Waymo (2016)	<ul style="list-style-type: none">• Yale, B.Sc., Chemical Engineering• Stanford Graduate School of Business, MBA
Farhood Rabii	VP – Finance & Operations	10	<ul style="list-style-type: none">• SunPower Corp (2014 - 2017)• Deloitte Grant Thornton PwC (2008 – 2014)• Certified Public Accountant (California)	<ul style="list-style-type: none">• University of California, Los Angeles (UCLA) B.S. Mechanical Engineering
Daniel Lee	VP – Corporate Controller	14	<ul style="list-style-type: none">• Senior Accounting Manager and Functional Controller of Commercial BU, SunPower Corporation (2017)• Senior Manager of Technical Accounting, SunPower Corporation (2013 – 2017)• Assurance Manager, Accuity LLP (Honolulu Successor Firm to PricewaterhouseCoopers LLP) (2006 – 2013)• Assurance Associate, PricewaterhouseCoopers LLP (2004 – 2006)	<ul style="list-style-type: none">• University of California, Los Angeles: B.S. in Business Economics, Minor in Accounting
Andrew Dubois	Tulco Labs – Head of Strategy & Operations	15	<ul style="list-style-type: none">• UBS: Executive Director (2003 – 2017)	<ul style="list-style-type: none">• Carnegie Mellon University, B.S. in Computer Science, Minor in Business Administration

Investment Highlights:

- Experienced Investment Team
- Highly Differentiated Investment Structure
- Initial Core Platform Investments
- Tulco Labs
- Institutional Sponsorship

Investment / Risk Considerations:

- Entry Value / Ongoing Valuation Analysis
- PSERS Ongoing Monitoring / Transparency
- Focus on Growth-Stage Companies
- Expenses at the Operating Company Level
- GP Commitment / Alignment of Interest
- Thomas Tull Majority Ownership / Voting Proxy
- Liquidity & Leverage Profile

PSERS History & Performance:

PSERS does not have a prior relationship with Tulco. As such, this would represent a first-time commitment to the Company.



Investment Committee Disclosure:

Relationship with Hamilton Lane:	None Disclosed
Introduction Source:	Tom Lamb, Pittsburgh Chamber of Commerce & Allegheny Conference
Placement Agent:	No
PA Political Contributions:	Yes
PA Presence:	Yes
Potential Conflicts:	We are not aware of Tulco having any conflicts.
First Time Fund With PSERS:	Yes
PSERS Allocation Implementation Committee Approval:	October 3, 2018

Oversight Responsibility:

Investment Office:	Charles J. Spiller Deputy CIO, Non-Traditional Investments James F. Del Gaudio Portfolio Manager
External Consultant:	Hamilton Lane



Hamilton Lane

October 1, 2018

Board of Trustees
Commonwealth of Pennsylvania
Public School Employees' Retirement System
5 North 5th Street
Harrisburg, PA 17101

Re: Tulco, LLC

Dear Trustees:

Tulco, LLC ("Tulco") was founded in 2017 by Thomas Tull after he sold his previous company, Legendary Entertainment, to Dalian Wanda Group. Tulco was formed as a holding company focused on acquiring early-stage companies that are focused on utilizing technology to disrupt industries that have not fully adopted data utilization. Tulco continues to be led by Thomas Tull and Martin Willhite, Vice Chairman, who are supported by 7 additional dedicated professionals, with additional oversight from external board members James Breyer, Michael Hayden and Alan Lafley. Mr. Tull and the senior investment professionals have significant expertise operating and investing in companies that seek to disrupt industries through technology; Mr. Tull's prior experiences have enabled him to develop large networks across multiple industries throughout the U.S. The investment team is augmented by Tulco Labs, which is a data science lab that supports Tulco's portfolio companies by generating machine learning, artificial intelligence applications and technology solutions to address specific improvements required to efficiently utilize data. While Tulco Labs currently consists of 12 technology-specialized professionals, Tulco expects to hire professionals as the platform continues to grow. Tulco seeks to create strong alignment by compensating employees through both performance based bonuses and an equity incentive program. Tulco is targeting \$150 million in fundraising for its second fundraise at an \$800 million pre-money valuation, and a \$950 million post-money valuation. Murray Devine was engaged to perform an independent third-party valuation and provided a valuation range that supported this valuation. Tulco has already raised \$150 million during its first fundraise from investors such as family offices, high net worth individuals and individuals from private equity firms.

Tulco employs a differentiated investment approach across industries that have not previously been disrupted by technology; while Tulco has a diversified sector approach, it expects to primarily target companies operating in the security, construction, recycling, insurance and apparel sectors. Tulco establishes views around these industries and proactively sources investments that fit its criteria; this ability to develop a targeted approach within niche industries, coupled with its deep networks, enables it to source opportunities and management teams outside of competitive processes. While Tulco intends to invest in companies located in the broader U.S., it has historically maintained an increased focus on companies located in the greater Pittsburgh area given Tulco's relationship with Carnegie Mellon. Tulco targets early- and growth-stage companies that typically generate negative or no EBITDA at entry and require capital to develop technology and to meaningfully scale. Generally, Tulco seeks to make control investments, enabling it to work alongside management teams and implement operational and strategic initiatives to drive growth; where a control position may not initially be possible, Tulco intends to establish a path to control through follow-on investments in additional funding rounds. Tulco seeks to generate value by developing strategic initiatives that are primarily focused on the implementation of technology to efficiently exploit data to differentiate portfolio companies from the broader market.

An investment in Tulco will present PSERS with the opportunity to establish a long term partnership with an experienced manager with deep networks in the technology space. Given the unique structure of Tulco, which operates as a holding company and is outside of a standard GP/LP fund structure, the



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proposed investment will be through the Special Situations portion of the PSERS portfolio. As Tulco has pre-existing investments within the holding company, PSERS will benefit from look through to those investments, helping to mitigate blind pool risk traditionally associated with investing in venture-like fund structures.

Tulco's investment thesis can be summarized as follows:

- Mr. Tull's previous experiences augments the platform's investment and sourcing capabilities
- Tulco Labs provides portfolio companies with improved technology solutions
- Attractive portfolio that is uniquely positioned in the marketplace

Hamilton Lane's recommendation is based upon the following analytical factors and is made within the context of Commonwealth of Pennsylvania, Public School Employees' Retirement System's ("PSERS") investment guidelines.

- Detailed due diligence, including interviews with industry peers and private equity professionals. The initial review was completed May 23, 2018; the in person on-site due diligence was conducted June 27 and 28, 2018, and subsequent on-site diligence completed via video conference on September 5 and 6, 2018; the Fund was approved by Hamilton Lane's Investment Committee on October 1, 2018 and the recommendation to PSERS was issued October 1, 2018.
- Evaluation of the composition of the investment team, how they work together, compensation structure and other factors that help determine whether a group is likely to be able to replicate past successes as currently configured.
- Detailed operational due diligence, including interviews with Tulco's back office team to review the controls and processes surrounding the firm's finance, legal, IT, HR, operations and administrative functions of the firm.
- Evaluation of the Fund's proposed investment strategy within the context of the current investment environment.
- The strategy proposed for the Fund is appropriate for the Private Markets – Special Situations component of the portfolio.

The individuals at Hamilton Lane who were involved in the due diligence process for the Fund are:

Andrea Kramer – Managing Director, Bala Cynwyd Office
John Stake – Vice President, Bala Cynwyd Office
Spencer Reiter – Analyst, Bala Cynwyd Office

Based on the above, Hamilton Lane recommends that PSERS commit up to \$100 million in Tulco, LLC, and that PSERS shall have discretion to fund follow-on equity rounds in Tulco up to an additional \$300 million. Hamilton Lane makes this recommendation considering the General Partner's qualifications and PSERS' overall investment guidelines.



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This recommendation is given solely for the benefit of PSERS and cannot be relied upon by other investors, considering an investment in the Fund, since their needs, objectives and circumstances may not be identical to those of PSERS. The scope of this recommendation is limited to the investment merits of the Fund. Hamilton Lane does not provide legal or other non-investment-related advice.

Sincerely,

Michael Koenig,
Chief Client Officer

Corina English,
Principal