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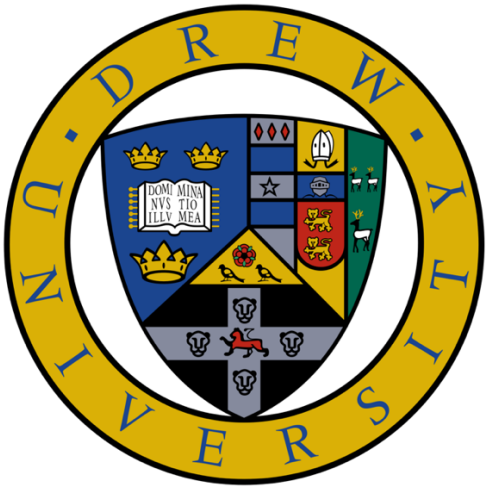


# What are the Effects of Turnover on Team Performance?

A Thesis in Business/ Sociology

by

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for the Degree of
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With Specialized Honors in Business/Sociology

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## Abstract:

Previous research on employee turnover and organizational performance can generally be grouped into two competing or conflicting views: one that focuses on the negative effects of employee turnover and another that emphasizes the positive benefits for the organization. Using official NHL statistics from eleven seasons (2008/09-2018/19), this thesis examines whether player turnover adversely affects team performance measured in regular season win percentage. Pooled correlation analysis indicates a weak to moderate negative association between player turnover and team win percentage, while case study analysis of a subsample of teams suggests that team management may play a significant role in moderating the effect of turnover and explain why teams with similar rates of player turnover do not experience similar outcomes in terms of win percentage.

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# Abbreviations

AHL……. *American Hockey League*

ARZ……..…*Arizona Coyotes*

BLS……. *Bureau of Labor Statistics*

BUF……. *Buffalo Sabres*

C……. *Center*

CAR……... *Carolina Hurricanes*

CBA……..……. *Collective Bargaining Agreement*

CBJ…….……..…*Columbus Blue Jackets*

CBS…….……...*Columbia Broadcasting System*

CGY……. *Calgary Flames*

D…….…….……*Defense*

DEL…….……..……. *Deutsche Eishockey Liga*

DET…….……..…. *Detroit Red Wings*

EDM…….……*Edmonton Oilers*

ELC……... *Entry-Level Contract*

ESPN…….....*Empire and Sports Programming Network*

FIFA…… *Fédération Internationale de Football Association*

FLA……...…...*Florida Panthers*

G……..... *Goaltender*

GM…….…….. *General Manager*

GP…….……... *Games Played*

KHL……. *Kontinental Hockey League*

LAK…….…... *Los Angeles Kings*

LTIR……*Long-Term Injury Reserve*

LW…… *Left-Wing*

MLB…… *Major League Baseball*

MLC……. *Medial Collateral Ligament*

MVP……*Most Valuable Player*

NAHL…… *North American Hockey League*

NBA……...*National Basketball League*

NC……..……. *North Carolina*

NFL……...*National Football League*

NHLPA……..… *National Hockey League Players Association*

NHL……... *National Hockey League*

NJD…….. *New Jersey Devils*

NSH……... *Nashville Predators*

NYI…… New *York Islanders*

NYR…….…… *New York Rangers*

PHI……. *Philadelphia Flyers*

REG. ……..…. *Regular*

RW…….…. *Right-Wing*

SPC……... *Standard Player's Contract*

STL……..…..….*St. Louis Blues*

TSN…….. *The Sports Network*

USD……..……....*United States Dollar*

USHL……. *United States Hockey League*

WPG……..……..*Winnipeg Jets*

WHA……... *World Hockey Association*

WHL……... *Western Hockey League*

# Introduction

On June 15th, 1994 the *New York Times* headline read: "STANLEY CUP FINALS; No More 1940! Rangers are Champs!" The New York Rangers had ended a 54-year drought of championships with an epic victory over the Vancouver Canucks in a seven-game series. For years their fans had listened to taunts and jibes from fans of rival teams, so despite being in first place in the Atlantic Division the team decided to make some last-minute moves at the trade deadline to further strengthen the team as they headed into the playoffs.[1]

These trades turned out to have been vital to the team's success in winning the 1994 Stanley Cup. One of these moves was the acquisition of Stephane Matteau from the Chicago Blackhawks. Team captain Mark Messier may have carried the team going into the seventh game of the Eastern Conference finals, but it was Stephane Matteau who scored the overtime winning goal that ended game seven in a series in which the Rangers had to come back from a tie after games six. The call at the time of the iconic broadcast that is forever enshrined in Rangers' lore is simply "Matteau! Matteau! Matteau!"[2]

In National Hockey League (NHL) history, there are numerous contrasting examples of changes being made to a team resulting in markedly different outcomes. For example, the 2008/09 Tampa Bay Lightning made more than a dozen changes to their team via trades and free agent signings during the season, yet failed to make the playoffs,

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[1] Hockey Reference. (2020). *1993-1994 New York Ranger Roster and Statistics*. Retrieved March 2020, from Hockey Reference: https://www.hockey-reference.com/teams/NYR/1994.html; Lapointe, J. (1994, June 15). *STANLEY CUP FINALS; No More 1940! Rangers Are Champs!* Retrieved March 2020, from New York Times: https://www.nytimes.com/1994/06/15/sports/stanley-cup-finals-no-more-1940-rangers-are-champs.html

[2] Best, N. (2019, February 8). *Forever linked by goal and call, Stephane Matteau and Howie Rose recall 1994 Rangers*. Retrieved April 2020, from Newsday: https://www.newsday.com/sports/hockey/rangers/matteau-matteau-matteau-howie-rose-1994-1.27018345

while the 2008/09 Detroit Red Wings retained the majority of their previous season's roster and managed to make it to the Stanley Cup Finals. Or consider the 1991/92 Pittsburgh Penguins who made a six-player swap with the Hartford Whalers and subsequently went on to win back to back championships.[3] Most recently, the St Louis Blues fired their head coach midway through the season, brought in a rookie goaltender shortly thereafter, and jump-started a winning streak that continued all the way to a Stanley Cup. [4]

In the end, being a successful NHL team is all about organizational success and teamwork, meaning it is necessary to have the right people, in the right places, at the right time. In this regard, turnover can be viewed as an opportunity (e.g. positive turnover in the form of trading to add depth to an important position) or a detriment (e.g. negative turnover such as when a valued player opts to sign as a free agent with another team) depending on the resulting outcome, raising a fundamental question: what is the net effect of player turnover on team performance?

Using the NHL to analyze the relationship between player turnover and team performance, I am able to control for several factors. For example, if I were to compare internal teams of companies in the financial sector then that would create a confounding factor as different companies have different monetary funds that they can spend on their employees. In the NHL, however, the salary cap allows a direct comparison as the monetary funds to pay players is the same for every team.

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[3] Vollman, R. (2014, March 4). *Ranking the 10. Best Trade Deadline Deals in NHL History* . Retrieved April 2020, from Bleacher Report: https://bleacherreport.com/articles/1978599-ranking-the-10-best-trade-deadline-deals-in-nhl-history

[4] Buffa, D. (2019, May 11). *Why Craig Berube was the onlly choice for the Blues*. Retrieved April 2020, from SB Nation - St Louis Game Time : https://www.stlouisgametime.com/2019/5/11/18566514/why-craig-berube-was-the-only-choice-for-the-blues

The results of this study indicate that while there does in fact appear to be a negative correlation between player turnover and team performance, the magnitude of the correlation is relatively small. Moreover, the degree of variation in team performance for teams with similar rates of turnover suggests that other factors may contribute to or moderate the effect of player turnover on team performance. Specifically, in-depth case study analysis of five NHL teams suggests that team management not only plays a significant role in determining the overall rate of player turnover, but may also moderate the effect of turnover and explain why teams with comparable rates of turnover have different outcomes.

The literature on turnover and organizational performance offers contrasting and conflicting views with some researchers asserting turnover negatively affects organizational performance, while others posit turnover can positively affect performance, with others arguing there is no discernable effect at all. This thesis examines how team turnover – also referred to as "collective turnover" – is related to a team's performance. Hausknecht and Trevor (2011) define *collective turnover* as, "aggregate levels of employee departures that occur within groups, work units, or organizations."[5] Therefore, the first task is to summarize the perspectives of the existing literature on turnover, productivity, as well as related research that focuses on turnover in professional sports, followed by an overview of how the NHL operates.

[5] Hausknecht, J. P., & Trevor, C. O. (2011, January). Collective Turnover at the Group, Unit and Organizational Levels: Evidence, Issues, Implications. *Journal of Management, 37, no. 1*, 353; Heavey, A. L., Holwerda, J. A., & Hausknecht, J. P. (2013). Causes and Consequences of Collective Turnover: A Meta Analytic Review. *Journal of Applied Psychology, 98, No.3*, 412; Nyberg, A. J., & Polyhart, R. E. (2013). Context-Emergent Turnover (CET) Theory: A Theory of Collective Turnover. *Academy of Management Review, 38, No. 1*, 109.

# Literature Review

The literature on the effect of turnover on organizational performance can be categorized or divided into three distinct subtopics: 1) the negative effects of employee turnover, 2) positive effects of employee turnover, and 3) the effect of turnover on teams versus individual performance. However, before I address the literature, it is first necessary to explain how the concepts of turnover and productivity are defined.

## *Defining Turnover*

Employee turnover is generally viewed by economists as part of the natural business cycle and is often considered necessary for business of all industries to flourish. If there was no turnover in the economy, individuals and their families would never be able to move or change jobs, restricting them to a particular location or job. In a free market business are inherently competitive; similar to the notion of natural selection, the fittest business will survive, and the unfit will be sorted out to make space for new businesses to enter. Therefore, some may view turnover as "a sign of an ongoing process of matching 'right workers with the right employees'" or the departure of employee from the "formerly defined organization".[6]

The literature distinguishes between two different kinds of turnover, voluntary and involuntary turnover.[7] *Voluntary turnover* describes an employee who voluntarily

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[6] Illmakunnas, P., Maliranta, M., & Vainiomäki, J. (2005). Worker Turnover and Productivity Growth . *Applied Economics Letter , 12, no. 7*, p.395; Hancock, J. I., Allen, D. G., Bosco, F. A., McDaniel, K. R., & Pierce, C. A. (2011). Meta-Analytic Review of Employee Turnover as a Predictor of Firm Performance. *Journal of Management, 39, no.3*, 576; March, J.G., & Simon, H.A. 1958. "*Organizations."* Oxford England: Wiley; The Bureau of Labor statistics defines turnover as "separation of an employee from an establishment", BLS. (2016, June 7). *Glossary*. Retrieved May 2019, from Bureau of Labor Statistics: https://www.bls.gov/bls/glossary.htm#P

[7] Bluedorn, A. C. (1982). The Theories of Turnover: Cause, Effects and Meaning. *Research in the Sociology of Organizations , 1*, 75-128; Hom, P., Lee, T., Shaw, J., & Hausknecht, J. (2017). One hundred years of employee turnover theory and research. *Journal oof*

chooses to quit their job, while *involuntary turnover* describes an employee who is either laid off or fired.[8] Involuntary turnover could, for example, reflect that a business is going through an economic downturn, restructuring, declaring bankruptcy, or simply looking for new talent to enhance the business and keep up with the market. Aside from voluntary and involuntary turnover, The U.S. Bureau of Labor Statistics (BLS) adds a third category of "other separations."[9] to describe those employees who retired, transferred within the organization, died, or had to leave the job due to a disability.

## *Defining Productivity*

Although there is no universal consensus, *productivity* generally refers to "the quantity of goods and services produced from each labor input."[10] Productivity is commonly used to describe the economic performance or efficiency of a given individual, organization, or industry.[11] The BLS defines productivity as, " [a] measure of economic efficiency that shows how effectively economic inputs are converted into output. Productivity is measured by comparing the amount of goods and services produced with the inputs that were used in production."[12]

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*Applied Psychology, 102(3)*, 530-545; Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate finacial performance. *Academy of Management Journal, 38, no. 3*, 651.

[8] Dess, G. G., & Shaw, J. D. (2001). Voluntary Turnover, Social Capital, and Organizational Performance. *The Academy of Management Review, 26, no. 3*, p. 446; Hancock, J. I., Allen, D. G., Bosco, F. A., McDaniel, K. R., & Pierce, C. A. (2011). Meta-Analytic Review of Employee Turnover as a Predictor of Firm Performance. *Journal of Management, 39, no.3*, 582; WeiBO, Z., Kaur, S., & Zhi, T. (2010, December ). A Critical Review of Employee Turnover Model (1938-2009) and Development in Perspective of Performance. *African Journal of Businesse Management , 4, No. 19* , 4148; Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate finacial performance. *Academy of Management Journal, 38, no. 3*, 651.

[9] BLS. (2013, March 14). *Chapter 18: Job Openings and Labor Turnover.* Retrieved May 2019, from The Bureau of Labor Statistics: https://www.bls.gov/opub/hom/pdf/jlt-20130314.pdf, 2.

[10] BLS. (2016, June 7). *Glossary*. Retrieved May 2019, from Bureau of Labor Statistics: https://www.bls.gov/bls/glossary.htm#P

[11] Mankiw, N. G. (2017). *Principles of Microeconomics* (Vol. 5th ed.). Stamford, CT: Cengage Learning, p.13.

[12] BLS. (2016, June 7). *Glossary*. Retrieved May 2019, from Bureau of Labor Statistics: https://www.bls.gov/bls/glossary.htm#P

In practice, however, defining and measuring productivity is far more complex. Productivity in some services can be measured in a fashion similar to manufactured goods. For example, one can count the number of patients a doctor sees within a day, the number of items a cashier scans, or the number of cars sold by a dealership.

But how should one measure the productivity of a teacher, coach, or a professional athlete? One can measure goals or shots a player takes, but that also means that a team can be productive and yet still lose a game. Conversely, using this definition a team could be unproductive – perhaps shooting less than the opposing team or scoring only a single goal or point – and still win. However, measuring and quantifying the provision of a service is often more complicated. For example, how should one measure the productivity of an ice hockey coach or a college professor? One could argue that a more productive professor publishes more books and journal articles or teaches more courses, but this emphasizes quantity over quality. Similarly, an ice hockey coach's productivity could be assessed in terms of numbers of practices, coaching sessions, or team wins; however, one could argue that more practices and coaching sessions doesn't necessarily mean a team is more productive. In fact, one could argue that it reflects a lack of productivity or competitive performance. Each of these examples demonstrate why it is important to clearly define what is meant by the term productivity and specifically the assumption upon which such definition is based as well as indicating the potential problems with applying one definition of productivity across industries or different types of work.

Moreover, team productivity or performance cannot be simply reduced to a product of coaching. In both cases, productivity is also difficult to measure because much of the product is intangible, while those aspects that can be measured (e.g., practices, articles, lectures) are of questionable validity in assessing efficiency or performance. Winning a hockey game is tangible, while what it takes to win a game may have intangible inputs. Clearly, the term productivity can and should have different meanings in different contexts.

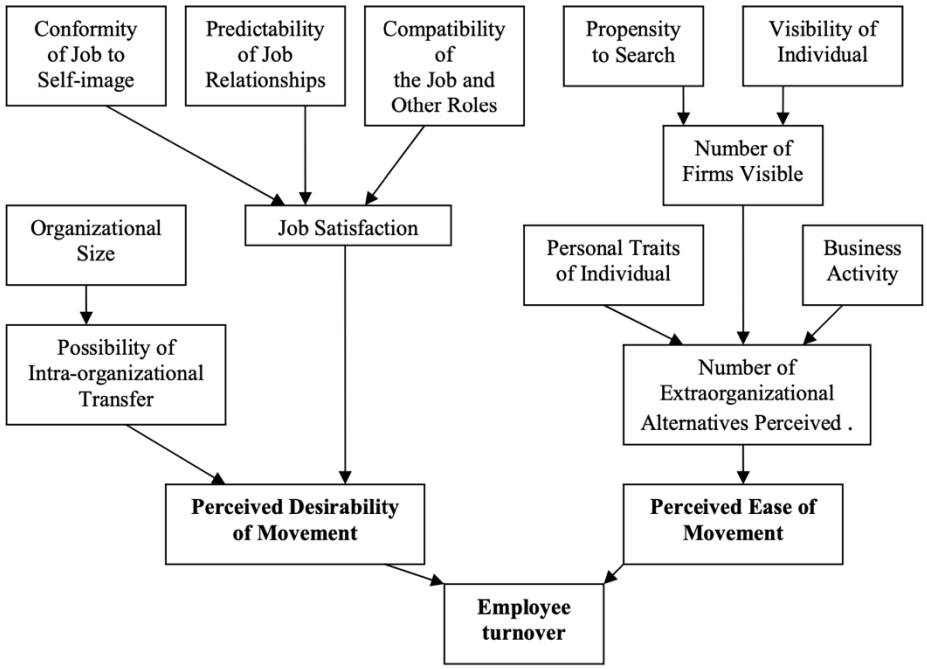
In professional sports, losing is not considered productive, but rather destructive or a loss. A losing team also risks losing sales of tickets and merchandise, television revenue, and perhaps even players who demand a trade or refuse to resign or extend a contract when it expires. Likewise, a winning team stands to gain increased ticket sales and merchandise, larger shares of broadcast revenues, and attract and retain skilled players whose goal is to win the league and the benefits that come with it.

Using a professional sports league to investigate the relationship between turnover and performance, I define productivity as the number of games a team wins for the aforementioned reasons.

## *A Classic Model of Turnover: March and Simon's Theory of Labor Markets, Organizations, and Employee Turnover*

Although a number of researchers have developed conceptual models of turnover, one of the most frequently cited is March and Simon's (1958) which linked labor markets and employees' behavior to the balance or imbalance of an organization's equilibrium. They asserted that employees' desire to leave an organization (i.e., job satisfaction) and

the ease of changing to another organization (i.e., job alternatives) significantly determined whether they decided to quit their job or not. This means that the organizational balance would be disrupted and turnover increased if employees were not satisfied and if they have the ability to easily find a new job.[13]




*Source:* March & Simon, Organizations (1958), p. 99.

Specifically, Simon believed that economists' decision-making models had flaws since they assumed that individuals act rationally and have complete information about all of the options available to them when making their choices. Instead, Simon (1957) proposed the model of "bounded rationality" as an alternative decision model to the utility maximization model since he believed that rationality is limited when individuals

[13] March, J.G., & Simon, H.A. 1958. "*Organizations."* Oxford England: Wiley; WeiBO, Z., Kaur, S., & Zhi, T. (2010, December). A Critical Review of Employee Turnover Model (1938-2009) and Development in Perspective of Performance. *African Journal of Businesse Management, 4, No. 19,* p.4149; Tosi, H. L. (2008). Chapter 7: James March, and Herbert Simon, Organizations. In H. L. Tosi, *Theories of Organizations.* Thousand Oaks, CA, USA: Sage Publications.

make decisions due to the cognitive limitations of the mind, and time constraints in making decisions.[14] Specifically, he pointed out that some decisions may be highly complex tasks that go beyond an organization or consumers human cognitive capabilities:

> "Broadly stated, the task is to replace the global rationality of economic man with the kind of rational behavior that is compatible with the access to information and the computational capacities that are actually possessed by organisms, including man, in the kinds of environments in which such organisms exist."[15]

Simon essentially proposed a more behavioral type of economics model compared to the often-used utility maximization model in economics. For example, a general manager may consistently check with the ownership and scouts as the time on the clock runs down during the first round of the draft. They do not have all of the information for every single player, nor do they have time to run down the trade-offs of possible scenarios. Therefore, a "rational" approach to making a draft selection is "bounded" by the time allotted, resources available on hand, and the limitations of the general manager's brain to process all of this in a timely fashion.

Similarly, Cohen, March, and Olsen (1972) proposed the so-called "garbage can" model (GCM) to describe the chaotic reality of organizations' decision-making within an

[14] Simon, H. A. (1957). *Model of Man: Social and Rational.* New York: John Wiley & Sons.
[15] Simon, H. A. (1955). A Behavioral Model of Rational Choice. *Quarterly Journal of Economics, 69 (1),* p.99.

organized anarchy.[16] Specifically, their model examines the decision-making process in anarchies, or organizations that experience high levels of ambiguity due to their decisional environments. The GCM attempts to explain how organizations make their choices without having consistent and shared goals and how members of the organization are involved in the decision-making process. Cohen *et al.* (1972) pictures the decision-making process as having a mix of problems and possible solutions all dumped in a garbage can without any of the mixes indicating the decisions outcome. In other words, the model captures the way in which decision situations become a receptacle for various parties to interject their view of what the problems, solutions, opportunities, and relevant parties are.

For example, general manager, owners, head coach and scouts may have had a meeting prior to the draft to discuss their strategy. Each of the parties will interject their own view of what the team's problems are, how they can be solved, and who should be involved in the process. Each participant might see different opportunities. For example, the head coach might think it would be advantageous to acquire a veteran player to mentor younger players, while a general manager views this as an incursion of their authority and perhaps an unnecessary financial risk, while ownership is more concerned with acquiring who they think is the best player available in the draft. Each of the parties may see different opportunities in the draft and throw their opinions into the can which then may be involved in the decision-making process. In other words, throwing all these problems, solutions and opportunities into the garbage can adds complexity and makes

[16] Cohen, M. D., March, J. G., & Olsen, J. (1972*). A Garbage Can Model of. Organizational Choice*. 1-25.

the decision-making process for the involved groups more difficult and prone to creating more problems and decisions.

## *Negative Effects of Turnover*

Much, if not most, of the literature on the effect of employee turnover emphasizes the negative effects it has on organizational performance. Researchers note that turnover interrupts operations, destabilizes organizational practices, slows organizational learning, and depletes human and social capital.[17] High levels of employee turnover rates are also associated with lower levels of productivity, employee or job dissatisfaction, customer service, accurate communication, and profits.[18]

While some of the literature is somewhat theoretical (e.g., Price 1977; Price 1989; Mobley 1982; Hom, Shaw, Lee, Hausknecht 2017), a series of well-cited empirical studies suggest that employee turnover negatively affects organizational performance. For example, some research points out that it may be important what the remaining employees think about the turnover (e.g., voluntary or involuntary turnover) as it may

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[17] Dess, Gregory G., and Shaw, Jason D. "Voluntary turnover, social capital, and organizational performance." *Academy of management review* 26, no. 3 (2001): 446-456; Staw, B. M. (1980). The consequences of turnover. *Journal of Occupational Behavior (Pre-1986), 1*(4), 253.; Price, James L. 1977. *"The Study of Turnover."* Ames: Iowa State University Press.; Mobley, William H. "Some Unanswered Questions in Turnover and Withdrawal Research." *The Academy of Management Review*, vol. 7, no. 1, 1982, p. 113.; Argote, L., & Epple, D. (1990, February 23). Learning Curves in Manufacturing. *Science, 247, No. 4945*, 920-924.

[18] Batt, R. (2002). Managing Customer Service: Human Resources Practices, Quit Rates, And Sales Growth. *Academy of Management Journal, 45, No. 3*, 587-597; Hom, P., Lee, T., Shaw, J., & Hausknecht, J. (2017). One hundred years of employee turnover theory and research. *Journal oof Applied Psychology, 102(3)*, 530-545; Hancock, J. I., Allen, D. G., Bosco, F. A., McDaniel, K. R., & Pierce, C. A. (2011). Meta-Analytic Review of Employee Turnover as a Predictor of Firm Performance. *Journal of Management, 39, no.3*, 573-603; Mowday, R. T. (1981). Viewing Turnover From the Persepctive of Those Who Remain: The Relationship of Job Attitudes to Attributions of the Causes of Turnover. *Journal of Applied Psychology, 66, No. 1*, 120-123; Kacmar, K. M., Andrews, M. C., Rooy, D. L., Steilberg, R. C., & Cerrone, S. (2006). "Sure, Everyone Can be Replaced ... But At What Cost? Turnover As A Predictor Of Unit-Level Performance. *Academy of Management Journal, 49, No. 1*, 133-144; James L. "The Impact of Turnover on the Organization." *Work & Occupations*, vol. 16, no. 4, Nov. 1989, p.470;
Mobley, William H. 1982. *"Employee Turnover: Causes, Consequences, and Control."* Reading, MA: Addison-Wesley.; Mobley, William H. "Some Unanswered Questions in Turnover and Withdrawal Research." *The Academy of Management Review*, vol. 7, no. 1, 1982, p. 111-116.; Price, James L. "The Impact of Turnover on the Organization." *Work & Occupations*, vol. 16, no. 4, Nov. 1989, p.469; Ton, Z., & Huckman, R. S. (2008). Managing the Impact of Employee Turnover Performance: The Role of Process Conformance. *Organizational Science, 19, No. 1*, 56-68.

affect their attitude towards work and therefore could have an effect on their productivity.[19] Mowday's (1981) study of state agencies surveyed roughly 500 employees and revealed that people who are more dedicated to their work were less likely believe that turnover within their organization was caused due to dissatisfaction among employees. While perhaps not representative of the larger population –the majority of the sample were women (81%) – the findings suggested that workers who reported the opposite will negatively affect the attitude of the remaining employees, potentially causing a decline in productivity.

Similarly, more recent research by Hausknecht and Trevor (2011) suggests that while some of the aforementioned factors (e.g., human capital, job dissatisfaction) may be relevant, such factors can be highly complex and dependent on contingent moderators that may lead to different outcomes. For example, Hancock, Allen, Bosco, McDaniel, and Pierce (2011) argue in their empirical research that they believe that there is an underlying complexity in the relationship between turnover and performance that has to be examined in order to assert clearly and straightforwardly that turnover and an organization's performance are negatively correlated. Using a meta-analytic model to test the relationship between turnover rates and organizational performance, they concluded that the mean corrected correlation $(r)$ between turnover and organization was$-0.03$ but that the relationship may vary in strength across different sectors (e.g., manufacturing, transportation industries, managerial employees, mid-size organizations).

[19] Price, J. L. (1977). The Study of Turnover. *Iowa State University Press*.; Price, J. L. (1989, November ). The Impact of Turnover on the Organization. *Work & Occupations , 16, no. 4* , 461-473.; Hom, P., Lee, T., Shaw, J., & Hausknecht, J. (2017). One hundred years of employee turnover theory and research. *Journal oof Applied Psychology, 102(3)*, 530-545.

Since much of the research cited above suggests turnover has more consistently negative effects, the next section specifies the relevant determinants (e.g., coordination, task cohesion, task interdependence, human capital, knowledge transfer, experience).[20]

## *Positive Effects of Turnover*

While the literature on turnover appears to suggest that the potential negatives outweigh the positives, there are some researchers who suggest turnover can have a positive effect on firms' performance. For example, Dolton and Todor (1979) argue that turnover can increase an organization's effectiveness due to new ideas and knowledge added by newly hired employees. Turnover can also be an opportunity for an organization to reduce or eliminate the least productive workers – for example, firing the bottom 10 percent –allowing firms to shed inefficient staff and make space for more productive employees.[21]

Faster-evolving market changes also means that companies need an even greater flexibility and adaptability in order to remain effective and competitive. General Stanley McCrystal stated in his book *Team of Teams* (2015) that, " [t]he connectivity of trust and purpose imbues teams with an ability to solve problems that could never be foreseen by a single manager- their solution often emerges as the bottom-up result of interactions,

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[20] Koslowsky, M. (1987). Antecedents and Consequences of Turnover: An Integrated Systems Approach. *Genetic, Social, and General Psychology Monographs, 113*, 269-292; Staw, B. (1980). The Consequences of Turnover. *Journal of Occupational Behavior (Pre-1986), 1 (4),* 253-273.

[21] Dalton Dan R., and Todor, William D. "Turnover Turned over: An Expanded and Positive Perspective." *The Academy of Management Review*, vol. 4, no. 2, 1979, p. 226-227.

rather than from top-down orders."[22] In other words, the traditional top-down structure that exists in some companies prohibits existing teams from being flexible and adaptable. They have to run potential solutions of problems by their managers before acting, causing them to lose time in addressing an issue which could create new problems to arise. In other words, organizations will have to overcome the command-like structure to become more adaptable and flexible in order to compete in the market and ride with the fast-evolving structure of the market.[23]

This concept of *forced ranking* was first brought into the spotlight by former General Electric (GE) CEO Jack Welch.[24] The *Wall Street Journal* wrote that in GE's 2000 annual report, Welch "explained and praised enthusiastically" about the use of his forced ranking system, stating that in order to ensure high-performance levels it was crucial that every year GE eliminate the bottom 10% of its workforce.[25]

Since then, there has been a wide discussion regarding whether forced rankings are useful in ensuring high-performance levels in an organization. On the one hand, forced ranking may help companies to proactively identify underperforming and/or

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[22] McCrystal, S., Collins, T., Silverman, D., & Fussell, C. (2015). *Team of Teams - New Rules of Engagement for a Complex World.* New York , New York , USA: Penguine Publishing Group, p. 114; Broberg, A. D. (2019, October 6). *General Stanley McChrystal: Team of Teams*. Retrieved April 2020, from Agile Lean House: https://agileleanhouse.com/en/general-stanley-mcchrystal-team-of-teams.html

[23] McCrystal, S., Collins, T., Silverman, D., & Fussell, C. (2015). *Team of Teams - New Rules of Engagement for a Complex World.* New York , New York , USA: Penguine Publishing Group, p. 132

[24] Kagan, J. (2019, June 25th). *Jack Welch*. Retrieved September 2019 , from Investopedia: https://www.investopedia.com/terms/j/jack-welch.asp

[25] GE. (2000). *GE Annual Report 2000.* Retrieved September 2019, from General Electric: https://www.ge.com/annual00/download/images/GEannual00.pdf ; Grote, D. (2005). Forced Ranking: Making Performance Management Work. In R. C. Grote, *Forced Ranking: Making Performance Management Work.* Boston, MA, United States of America: Harvard Business School Press.; Hazels, B., & Sasse, C. M. (2008). Forced Ranking: A Review (Cover Story). *SAM Advanced Management Journal, 73, no.2,* 35-39; Bates, S. (2003, June 1). *Forced Ranking*. Retrieved September 2019, from SHRM: https://www.shrm.org/hr-today/news/hr-magazine/pages/0603bates.aspx; The most popular quote from Jack Welch regarding forced ranking is known as "rank and yank.", Welch, J. (2013, November 14). *Jack Welch: 'Rank-and-Yank'? That's Not How It's Done*. Retrieved July 2019, from Wall Street Journal: https://www.wsj.com/articles/8216rankandyank8217-that8217s-not-how-it8217s-done-1384473281

incompetent employees. Alternatively, Sheehan's (1993) research suggests forced ranking might have a deleterious effect on the morale of employees who remain and perhaps do more harm than good to the organization. While Welch and others insist the practice motivates employees, Hazel's and Sasse's (2008) research suggests forced ranking might be effective at the individual-level, but harmful in team-based work environments. In a team setting, for example, an individual might see little incentive to engage in teamwork since helping someone else might enhance their standing at the cost of their own ranking.[26] In short, helping a coworker to be more productive might come at the cost of one's own productivity, creating a disincentive for teamwork and collaboration.

In the following section, I address the turnover literature in team-based work settings, followed by a review of the literature on turnover in professional sports.

## *Turnover in Team-Based Work Settings*

Although much of the literature concerning employee turnover and productivity largely focuses on the individual, more recent literature suggests there is a difference between individual-level turnover and turnover in teams, also referred to as *collective turnover*, with the implication that the consequences of collective turnover for teams differ when compared to individual turnover.[27] After all, while the loss of an individual

[26] Hazels, B., & Sasse, C. M. (2008). Forced Ranking: A Review (Cover Story). *SAM Advanced Management Journal, 73, no.2,* 35-39; Bates, S. (2003, June 1). *Forced Ranking*. Retrieved September 2019, from SHRM: https://www.shrm.org/hr-today/news/hr-magazine/pages/0603bates.aspx (Hal18)

[27] Dess, G. G., & Shaw, J. D. (2001). Voluntary Turnover, Social Capital, and Organizational Performance. *The Academy of Management Review, 26, no. 3*, 446-456; Hausknecht, J. P., & Trevor, C. O. (2011, January). Collective Turnover at the Group, Unit and Organizational Levels: Evidence, Issues, Implications. *Journal of Management, 37, no. 1*, 352-388; Shaw, J. D., Duffy, M. K., Johnson, J. L., & Lockhart, D. E. (2005). Turnover, Social Capital Losses, And Performance. *Academy of Management Journal, 48, No. 4*, 594-606; Morgeson, F. P., & Hofmann, D. A. (1999). The Structure and Function of Collective Constructs: Implications for Multilevel Research and Theory Development. *Academy of Management Review, 24, No. 2*, 249-265.

employee may have a direct effect on an organization's productivity, in team-based contexts the loss of a member may also adversely affect the functioning of the remaining members. Research notes that collective turnover depletes human resources, disrupts coordination, erodes task cohesion, redistributes tasks and responsibilities, and impairs the social relationships of team members.[28]

However, while much of the literature seems to be concerned with the impact it may have on a given team, it largely fails to consider the role of management who may be responsible for guiding the team in the first place. For example, research by Wittenbaum, Vaughan, and Stasser (1998) linked performance deficits in teams to poor group coordination, hypothesizing that group coordination is highly dependent on factors including the collective task (e.g., task interdependence, task uncertainty), team composition (e.g., diversity, group size, recompositing), temporal factors and limits (e.g., time pressure, milestones), and environmental constraints (e.g., feedback, goal setting, intervention, work context). For instance, they suggest that planning appears to worsen a team's performance if the task is simple since the team would be wasting time planning how to finish the task instead of actually completing work. Their research implies that there are several underlying factors (e.g., task uncertainty, task interdependence,

[28] Kuypers, T., Guenter, H., & Emmerik, H. v. (2018, April). Team Turnover and Task Conflict: A Longitudinal Study on the Moderating Effects of Collective Experiences. *Journal of Management, 44, no. 4,* 1287-1289; Shaw, J. D. (2011, August). Turnover Rates and Organizational Performance: Review, Critique, and Research Agenda. *Organizational Psychology Review, 1, no. 3*, 187-213; Van der Vegt, G. S., Bunderson, S., & Kuipers, B. (2010, September). Why Turnover Matters in Self-Managing Work Teams: Learning, Social Integration, and Tasdk Flexbility. *Journal of Management, 36, No. 5*, 1168-1191; Wittenbaum, G., Vaughan, S., & Strasser, G. (1998). Chapter 9: Coordination in Task-Performing Groups. In R. Tindale, L. Health, J. Edwards, E. Posavac, F. Bryant, Y. Suarez-Balcazar, . . . J. Myers, *Theory and Research on Small Groups* (pp. 515-558). New York, NY, USA: Plenum Press.

diversity) that could be influencing the coordination of a team and therefore could determine whether a team performs well or not.[29]

In another study, McEloy, Morrow, and Rude (2001) performed a comparative analysis on the effects of voluntary, involuntary and reduction-in-force turnover (e.g., downsizing) based on data from thirty-one regional sub-units of national financial service companies to examine the three different types of turnover. Specifically, they tested the relationship between the different types of turnover and performance, finding moderate to large magnitudes of the correlation values. The correlation measures between turnover and performance ranged from $-0.35$ to $-0.65$ (involuntary turnover), $-0.43$ to $+0.58$ (voluntary turnover), and $-0.31$ to $-0.80$ (reduction-in-force turnover). Their results suggest there are more pervasive adverse effects for reduction-in-force turnover in comparison to involuntary and voluntary turnover and highlight the negative effects of downsizing.

A more recent study by van der Vegt, Bunderson, and Kuipers (2010) examined how turnover in self-managing work teams influences interaction processes that promote effective task accomplishment, hypothesizing that social integration, team learning, and task flexibility is negatively affected by turnover. After an extensive year-long study, they concluded that team turnover has a negative effect on the performance of self-managing work teams.[30]

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[29] Wittenbaum, G., Vaughan, S., & Strasser, G. (1998). Chapter 9: Coordination in Task-Performing Groups. In R. Tindale, L. Health, J. Edwards, E. Posavac, F. Bryant, Y. Suarez-Balcazar, . . . J. Myers, *Theory and Research on Small Groups* (pp. 515-558). New York, NY, USA: Plenum Press.

[30] Van der Vegt, G. S., Bunderson, S., & Kuipers, B. (2010, September ). Why Turnover Matters in Self-Managing Work Teams: Learning, Social Integration, and Tasdk Flexbility. *Journal of Management, 36, No. 5*, 1168-1191

In short, the aforementioned findings suggest that turnover influences teams in team-based work settings more negatively than positively as turnover causes disruption in the team's cohesion.

In the following section, I address the issues surrounding the relationship between different types of turnover (e.g. managerial, player) and team performance, including a discussion of disagreement between the effects of turnover and team performance, cultural differences, and why it is important to further examine the relationship between turnover and team performance based on the current literature on turnover in professional sports. Specifically, examining the relationship between turnover and team performance so that managers are aware of the issues that they may face in the work environment and are prepared to handle issues as they arise.

## *Turnover in Professional Sports*

The literature on turnover and team performance in professional sports generally addresses four main themes, specifically 1) *managerial turnover* (e.g., mid-season coach turnover), 2) *task interdependence*, 3) *knowledge transfer*, and 4) *player turnover* spanning a range of international sports including baseball, basketball, football, hockey, and soccer.

Research on mid-season coach turnover finds varying effects on team performance. For example, White, Persad and Gee (2007) focused on 52 mid-season coach turnovers from 1989 to 2003 within the NHL, observing that teams showed an improved team performance following mid-season coach turnover, even when an

experienced coach was replaced by much less experienced one. However, their study, suffers from limitations: they reduced the number of coaching changes analyzed from 52 down to 15, ignoring interim coaches and only focusing on fired coaches who had been coaching at least one full season and replacement coaches who had coached at least 6 games that season after the transition and lasted at least another full season.[31] Why does this matter? In hockey, coach turnover - and especially mid-season coach turnover - happens quite frequently if a team is not playing well. Over the past five years, 27 teams have made at least one coaching change during a regular season.

Grusky (1963) conducted what appears to be the first empirical study that considered the possibility of a bi-directional link between managerial change and team performance. He specifically focused on the MLB and identified an inverse relationship between the number of managerial changes and the average performance of teams measured in terms of wins and losses[32] A similar empirical study by Madum (2016) focusing on coach turnover in the professional Danish soccer league Superliga, suggests that teams did significantly better following in-season coach turnover, while research by Allen and Chadwick (2012) suggests that a team is expected to have managerial turnover if it does not live up to performance expectations.[33]

Other studies examining the relationship between mid-season coach turnover and team performance report conflicting findings. Some assert that coach turnover affects the

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[31] White, P., Persad, S., & Gee, C. (2007). The Effect of Mid-Season Coach Turnover on Team Performance: The Case of the National Hockey League (1989-2003). *International Journal of Sports Science & Coaching , 2 (2)*, 143-152.
[32] Grusky, O. (1963, July). Managerial Succession and Organizational Effectiveness. *American Journal of Sociology, 69, No. 1*, 21-31
[33] Allen, W. D., & Chadwick, C. (2012). Performance, Expectations, and Managerial Dismissal: Evidence From the National Football League. *Journal of Sport Economics* (13, No. 4), 337-363; Madum, A. (2016). Managerial Turnover and Subsequent Firm Performance: Evidence from Danish Soccer Teams. *International Journal of Sport Finance, 11*, 46-62.

team's performance negatively, causing the team's performance to decline, while others argue precisely the opposite.[34] For example, a study of Belgian soccer teams by Balduck, Buelens, and Phillppaerts (2010) compared teams that experienced coach turnover with teams that did not. For their analysis, they used a repeated measure analysis of variance to evaluate the effects on mean team performance over time and regressions. While initially there appeared to be an improvement in short-term performance following a mid-season coach turnover, the regression revealed that the opposite was the case – finish with brief description of what this opposite outcome was (e.g., teams that experienced managerial turnover did worse, on average, compared to those that did not). The conflicting findings may be a result of researchers focusing on different professional sports leagues in different countries (e.g., England, United States, Spain). It is possible that each of these different locations may have different regulations and rules across different sports and leagues which may explain the conflicting findings.[35]

Davis, Fodor, Pfahl, and Stoner's (2014) research extended the study of the effect of turnover on team performance by also considering the degree to which team performance is *interdependent*, i.e., explain what interdependent means. They hypothesized that turnover on a team would automatically negatively impact the

[34] Balduck, A.-L., Buelens, M., & Philippaerts, R. (2010, September). Short-Term Effect of Midseason Coach Turnover on Team Performance in Soccer. *Research Quarterly for Exdercise and Sport, 81. No. 3*, 379-383; Audas, R., Dobson, S., & Goddard, J. (1997). Team Performance and Managerial Change in the English Football League. *Economic Affairs, 17*, 30-26; Bruinshoofd, A., & Weel, B. t. (2003). Manager to go. Performance dips reconsidered with evidence from Dutch football. *European Journal of Operational Research, 148*, 233-246; Lago-Peñas, C. (2011). Coach Mid-Season Replacement and Team Performance in Professional Soccer. *Journal of Human Kinetics, 28*, 115-122; Audas, R., Dobson, S., & Goddard, J. (2002). The Impact of Managerial Change on Team Performance in Professional Sports. *Journal of Economics and Business, 54*, 633-650; Curtis, J. E., Loy, J. W., & Hillen, J. M. (1986). Managerial Succession and Team Effectiveness: A Case Study of Japanese Professional Baseball. *Int. Rev. f. Soc. of Sport21, 21, No.4*, 339-351.

[35] Balduck, A.-L., Buelens, M., & Philippaerts, R. (2010, September ). Short-Term Effect of Midseason Coach Turnover on Team Performance in Soccer. *Research Quarterly for Exdercise and Sport , 81. No. 3*, 379-383.

performance of that team, but that this impact would increase if players with specific, non-redundant roles were moved out. Their reasoning for the hypothesis is that members of a particular team jointly collaborate to achieve a common goal. Specifically, they share information, knowledge, and experience with each other to reach the common goal of winning a game. However, the level of interdependence may vary among team members depending on the type of task being performed. [36] This study and others theorize that long-standing teams tend to have higher performance levels because of their shared experience, meaning that teams that share knowledge and are better able to coordinate activities will directly results in a coherent collective effort directed toward pursuing a team goal (e.g. winning a game).[37]

another well-discussed subject in studies of turnover and team performance is the role of *knowledge transfer* or human capital gained or lost through turnover of players or coaches. Trequattrini, Massaro, Lardo, and Cuozzo (2019) examined the relationship between knowledge transfer and organizational performance by attempting to identify the conditions and factors under which knowledge could be successfully transferred and enhance organizational performance. In other words, what combination of conditions have to be met to see a team performance improve as coaches get transferred from one team to another? They concluded that if specific conditions are realized simultaneously

[36] Davis, J. L., Fodor, A., Pfahl, M. E., & Stoner, J. (2014). Team Interdependence and Tunover: Evidence from the NFL. *American Journal of Business, 29, No. 3/4*, 276-292; Gully, S. M., Devine, D. J., & Whitney, D. J. (1995, November). A Meta-Analysis of the Cohesion and Performance. *Small Group Research, 26, No. 4*, 497-520.

[37] Davis, J. L., Fodor, A., Pfahl, M. E., & Stoner, J. (2014). Team Interdependence and Tunover: Evidence from the NFL. *American Journal of Business, 29, No. 3/4*, 276-292; Berman, S. L., Down, J., & Hill, C. W. (2002). Tacit knowledge as a source of competitive advantage in the National Basketball Association. *Academy of Management Journal, 45, No. 1*, 13-31; Pelled, L. H., Eisenhardt, K. M., & Xin, K. R. (1999). Exploring the Black Box: An Analysis of Work, Group Diversity, Conflict and Performance. *Administrative Science Quarterly, 44, No. 1*, 1-28; Harrison, D. A., Mohammed, S., McGrath, J. E., Florey, A. T., & Vanderstoep, S. W. (2003). Time Matters in Team Performance: Effects of Member Familiarity, and Task Discontinuity on Speed and Quality. *Personnel Psychology, 56, No. 3*, 633-669; Harris, C. M., McMahan, G. C., & Wright, P. M. (2012). Performance, Talent and Time Together: The Impact of Human Capital and Overlapping Tenure on Unit. *Personnel Review, 41, No. 4*, 408-427.

(e.g., championships increase competitiveness, new investments, player turnover, staff turnover) then that will allow a team to improve its performance. [38]

A fourth reoccurring theme in the literature concerns the effect of *player turnover,* i.e., departure of players from a team, on team performance. A recent article by Barreira, Carvalho de Sousa and Galatti (2019) examining the relationship between player turnover and team performance in the FIFA Women's World Cup examined the longevity of players' tenure on a given team and found that the overall average player turnover rate was about 53% while teams that won a medal experienced a slightly lower turnover rate (48%) compared to non-medalist teams (57%). While they could not establish a definitive connection between player turnover and team performance, they hypothesized that lower rates of turnover could be beneficial for team performance (e.g., replacing older, aging veterans with younger players from the U-21 national team).[39]

Others like Kahane and Shmanske (1997), who focused on the Major League Baseball (MLB), find that turnover is negatively affected by variables such as price, quality, and demographics.[40] White, McTeer, and Vagi (1991) conducted similar research examining the effect of being traded during the season in the NHL, finding that teams' performance (i.e., goals, points) increased following mid-season trades. Players who showed previously poor performance at their current team showed improvement as they went on to a new team, suggesting that turnover might have had an impact on the

[38] Trequattrini, R., Massaro, M., Lardo, A., & Cuozzo, B. (2019). Knowledge transfer and manager turnover: impact on team performance. *Business Process Management Journal, 25, No. 1*, 69-83.
[39] Barreira, J., Sousa, G. C., & Galatti, L. R. (2019). Player Turnover and Team Performance in FIFA Women's World Cup. *The Journal of Physical education, 25, No. 3*, 1-6.
[40] Kahane, L., & Shmanske, S. (1997). Team Roster Turnover and Attendance in Major League Baseball. *Applied Economics, 29*, 425-431.

previous team, but might have a positive impact for the future team. However, the inexperienced players' overall performance did not match the degree of performance of the season prior to the trade.[41] Possibly the improvement may be related to Illmakunnas *et al's.* (2005) theory that the previous organization was not the right fit for the player, but the new organization is, or at least is at first sight.[42]

Although there is a large body of research on turnover and team performance, it is difficult to summarize or generalize for a number of important reasons. First, many articles tend to focus one or two factors or variables rather than the complex interplay of factors and contingencies that a number of scholars claim more accurately describes how organizations actually operate. In short, studies on turnover and team performance tend to be reductionist rather than holistic or comprehensive and may explain why similar studies find discrepant findings.

Organizational performance is highly complex and likely contingent upon not one or two, but numerous factors ranging from mid-season coach turnover (Audas, Dobson, and Goddard, 1997, 2002; Balduck *et al.*, 2010; Brainshoofd and Weel, 2003; Curtis *et al.*, 1986; Lago-Peñas, 2011; Madum, 2016; White *et al.*, 2017) to general managerial turnover (Allen *et al.*, 2012; Audas *et al.*, 1997), task interdependence (Berman, Down, and Hill, 2002; Davis *et al.*, 2014; Gully, Devine, and Whitney, 1995; Harris, McMahan, and Wright, 2012; Harrison, Mohammed, McGrath, Florey, and Vanderstoep, 2003),

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[41] White, P. G., McTeer, W. G., & Vagi, A. B. (1991). The Effect on Team Performance of Being Traded During the Season: The Case of the National Hockey League. *Journal of Sport Behavior, 14, No. 3*, 201-209; Bateman, T. S., Karwan, K. R., & Kazee, T. A. (1983). Getting a Fresh Start: A Natura Quasi-Experimental Test of the Performance Effects of Moving to a New Job. *Journal of Applied Psychology, 68, No. 3*, 517-524.

[42] Illmakunnas, P., Maliranta, M., & Vainiomäki, J. (2005). Worker Turnover and Productivity Growth . *Applied Economics Letter , 12, no. 7*, 395-398.

knowledge transfer (Trequattrini *et al.*, 2019), player mid-season turnover (Bateman, Karwan, and Kazee, 1983; White *et al.*,1991), player turnover (Barreira *et al.*, 2019; Kahane *et al.*, 1997), organizational expectations (Allen *et al.*, 2012), and cultural norms just to list a few (Curtis *et al.*, 1986).

Second, organizational performance is often either vaguely defined or defined in different ways by different authors. While there are conflicting views on the relationship between collective turnover and team performance, the overall literature on turnover tends to disproportionately cite negative outcomes as a consequence. Accordingly, this study aims to examine whether this trend extends to professional hockey in the NHL

In the next section, I explain why professional sports – and specifically hockey – is a useful context for examining the relationship between player turnover and team performance.

## *"Winning isn't everything; it's the only thing": Measuring Productivity in Professional Sports*

Productivity, whether individual or team, manufacturing or service, generally refers to some sort of output of economic value. In the context of professional sports, those outputs may include shots, goals, and points. Collectively, however, I argue that the paramount output – the most valued outcome – is winning games; as former UCLA Bruins football coach Henry Russell Sanders used to say, "Winning isn't everything; it's the only thing!"[43]

[43] Richard, B. (2020, January 15). *Nothing Wrong with Stealing Baseball Signs* . Retrieved April 2020, from 1420 WBSM: https://wbsm.com/nothing-wrong-with-stealing-baseball-signs-opinion/

Accordingly, this thesis measures team performance in terms of the number of games won, including regular and postseason games, using the number of games won and dividing them by the total number of games played within a given season in order to calculate the win percentage of each team.[44] While goals scored might initially seem to be an equal or better measure of productivity or team performance, one team can score more goals than another over the course of the season and still have a lower overall win percentage and/or fail to qualify for the playoffs.

### *Defining Turnover*

For the purpose of this research, I am assuming that turnover is the entering and exiting of employees within an organization. While the literature demonstrates specific aspects of these movements to qualify the effect of turnover (e.g., reason for leaving), for the purpose of this study turnover will be measured in terms of player roster changes from the previous season. Since I believe that management plays an important role in terms of the relationship between employee turnover and team performance, I also include managerial turnover (e.g., coaches, general managers). For example, in hockey general managers decided on whose contract will be extended, who will be traded, who they sign out of free agency and who they draft. In other words, they directly influence a team's turnover in some way. While this is not the only way turnover can happen, much of the turnover is still directed by the general managers of a team. Even though general

[44] During the regular season in the NHL, each team plays eighty-two games. However, some teams may play more games due to qualifying for the playoffs or needing to play more games in order to advance through each round of a best of seven series playoff format. Accordingly, I decided to divide the total number of wins by the total number of games a particular team played to ensure that the win percentage for each team is adjusted to make teams that do and do not make the postseason playoffs comparable. The productivity measures will be explained and shown in the "Data" section of this research paper.

managers impact turnover, whether the team's performance will be positively or negatively affected may vary in a team-to-team basis. For example, it may depend on the general manager's strategy on how the team has to be constructed to be able to win. The head coach then has the challenge of guiding and training the team in order to win games. While I considered managerial turnover, I am not mathematically considering the turnover, but will consider them in my team-specific case study analysis as a factor that may influence the effects of turnover on team performance.

There may be other turnover measures one can look at (e.g., trades, free agency, contract expiration, changes between NHL and minor leagues), but for my research the team turnover and the consideration of management are the most important aspects for answering the question of what effects turnover on team performance has. The turnover percentage, regular season percentage and the win percentage of the attending playoff teams were calculated by the following equations:

$$Turnover\% = \frac{Players\ changed\ from\ prior\ Season}{Total\ Players\ of\ current\ \ Season}$$

$$Regular\ Season\ Win\% = \frac{Regular\ Games\ Won}{Total\ \ Regular\ Games\ Played}$$

$$Playoff\ Win\% = \frac{Playoff\ Games\ Won}{Total\ Playoff\ Games\ Played}$$

The measures were used to compare the turnover percentage of each team to their regular season win percentage or even to their playoff win percentage (if they attended)

to identify whether there is a positive or negative correlation. The timeline of my collected data is displayed in **Graph 1.1** of the Appendix.

## Economic Structure of the National Hockey League

Whereas many private U.S. businesses can hire and fire employees at will, NHL regulations, as well as the collective bargaining agreement (CBA) between players and the league, strictly regulate player movement. Below, I describe how NHL regulations, specific clauses in the CBA, and the league's salary cap impact player movement.

### *NHL Team Rosters*

The NHL's rules bind team franchises to a maximum 23-man roster that includes a minimum of eighteen players and two goaltenders for each season. Teams can promote or demote players to their respective American Hockey League (AHL) farm teams. Any players placed on the long-term injury reserve (LTI) do not count toward the active player roster; the active roster can change on a game-to-game basis but must be approved by the NHL prior to the game.[45]

### *Collective Bargaining Agreement (2012-2022)*

The CBA is a ten-year contract between the NHL and the National Hockey League Players' Association (NHLPA) and specifies the terms and conditions of employment for players. Among other things, the agreement addresses player contracts,

[45] NHL. (2019). *Hockey Operation Guidelines*. Retrieved June 2019, from NHL: http://www.nhl.com/ice/page.htm?id=26377; Levin, J. (2008, July 11). *The Business of the Game: Roster Limits* . Retrieved from NHL : https://www.nhl.com/predators/news/the-business-of-the-game-roster-limits/c-439739

health benefits, minimum compensation, unions, and pension plans.[46] In short, the CBA is similar to collective bargaining agreements that specify the terms of employment in other industries (e.g., retail food, transportation). The CBA is relevant to this study because it governs what types of player turnover or movement (e.g., trades, demotions) are allowed and under which circumstances they are allowed to happen (e.g., cut-off dates, deadlines). While these rules are only valid for the length of the contract, there were no changes to rules regarding player movement during the period sampled. Next, I briefly summarize the salary cap section of the CBA since it directly influences teams' rosters.

## *Salary Cap*

Unlike other professional sports leagues (e.g., MLB, NBA), the NHL has a strict salary cap meaning that teams that go above the salary cap at any time are sanctioned. Specifically, the salary cap sets a maximum budget teams can spend on players while also instituting a minimum team budget that teams must meet in order to make the league competitive and limit the advantage of higher revenue earning teams. Because each team is provided the same salary cap restrictions, it allows one to make comparisons across teams while controlling for variations in market size or team revenue.

However, the cap is not fixed. Instead, the cap is adjusted on a year-to-year basis and is calculated based on the total revenue of the prior NHL season for the following season. Violations of the cap will trigger high violation fines. A team that has violated the

[46] NHLPA. (2019). *Collective Bargaining Agreement 2012-2022*. Retrieved June 2019, from NHLPA: https://www.nhlpa.com/the-pa/cba

hard salary cap faces fines up to $5 million (USD), cancellation of contracts, loss of draft picks, loss of points/and or game (s) that might have been affected through the violation.[47] In 2010, for example, the New Jersey Devils attempted to circumnavigate the cap by signing Ilya Kovalchuk to 17-year contract for $102 million. The contract frontloaded the salary over the first eleven years with a significantly reduced salary of only $550,000 over the final six years. The team knew full well that the player would likely not play those final years after the age of 40. As a result, the team was hit with a $3 million dollar fine and the removal of several draft picks.[48]

Player contracts can include conditional bonuses. If the condition is fulfilled, then the paid-out bonus will count towards the salary cap of the following season.[49] For example, a player can receive a games-played bonus (if included in his contract), meaning that he would receive a bonus payment if he played X amount of games. The sum of the bonus and the number of games he would need to play is determined in his contract. Generally, there are two types of bonuses, performance-based bonuses and signing based bonuses. The benchmarks for these bonuses are set by each NHL franchise and therefore vary from team to team. Management makes the decision on how to evaluate players and whether or not they deserve a bonus or not. Not every player is

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[47] J.J. (2015, June 25). *Salary Cap/ Salary Floor Noncompliance: Why Teams Don't Cheat* . Retrieved March 2020, from SB Nation - Winning It in Motown: https://www.wingingitinmotown.com/2015/6/25/8819603/salary-cap-salary-floor-noncompliance-why-teams-dont-cheat

[48] AssoicatedPress. (2010, September 13). *Devils penalized over Kovalchuck deal*. Retrieved April 2020, from ESPN: https://www.espn.com/new-york/nhl/news/story?id=5569258 ; Ackert, K. (2010, September 14). *Ilya Kovalchuk's 17-year deal with New Jersey devils costs team $3M fines from the NHL plus draft picks*. Retrieved April 2020, from NY Daily News: https://www.nydailynews.com/sports/hockey/ilya-kovalchuk-17-year-deal-new-jersey-devils-costs-team-3m-fines-nhl-picks-article-1.438909

[49] Knappe, K. (2018, July 17 ). *The Basics on NHL Contract Bonuses*. Retrieved from SB Nation Pension Plan Puppets: https://www.pensionplanpuppets.com/and-now-you-know/2018/7/17/17575422/the-basics-on-nhl-contract-bonuses-maple-leafs-contract-slide-signing-bonus-performance-bonus; PuckPedia. (2019). *Everything You Want to Know About Your Favorite NHL Teams*. Retrieved June 2019, from PuckPedia: https://puckpedia.com/teams; Haase, T. (2019, June 17). *Primer: Understanding Bonuses in NHL Contracts*. Retrieved November 2019, from DK Pittsburgh Sports: https://www.dkpittsburghsports.com/2019/06/17/nhl-signing-performance-bonuses-faq-tlh/

eligible for such a bonus. A player must meet one of the following criteria: the player is on an entry-level contract (ELC), the player has signed a one-year contract and is over 35 years old, or the player has signed a one-year contract after returning from a long-term injury (has played 400 or more games and spend 100 or more days on the Injury Reserved in the last year of their most recent contract). The bonus payments can go beyond the salary cap, but cannot exceed 7.5% of the upper limit.[50] This information is relevant to my research since it indicates small loopholes that may cause teams to have a slight advantages over one another or can be a detriment if bonuses are not well planned since that will cause involuntary turnover for the management as teams are forced to cut down on player contracts or have less cap availability to sign new talents that they may have considered. Importantly, the team can only spend 20% of the salary cap of a season for a single-player, and must spend 85% of the midpoint salary cap.

Violations of the cap will trigger high violation fines. A team that has violated the hard salary cap faces fines up to $5 million (USD), cancellation of contracts, loss of draft picks, loss of points/and or game (s) that might have been affected through the violation.[51] In 2010, for example, the New Jersey Devils attempted to circumnavigate the cap by signing Ilya Kovalchuk to 17-year contract  for $102 million. The contract frontloaded the salary over the first eleven years with a significantly reduced salary of only $550,000 over the final six years. The team knew full well that the player would

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[50] CapFriendly. (15, July 2019). *Frequently asked Questions*. Retrieved August 2019, from CapFriendly: https://www.capfriendly.com/faq; Knappe, K. (2018, July 17 ). *The Basics on NHL Contract Bonuses*. Retrieved from SB Nation Pension Plan Puppets: https://www.pensionplanpuppets.com/and-now-you-know/2018/7/17/17575422/the-basics-on-nhl-contract-bonuses-maple-leafs-contract-slide-signing-bonus-performance-bonus

[51] J.J. (2015, June 25). *Salary Cap/ Salary Floor Noncompliance: Why Teams Don't Cheat* . Retrieved March 2020, from SB Nation - Winning It in Motown: https://www.wingingitinmotown.com/2015/6/25/8819603/salary-cap-salary-floor-noncompliance-why-teams-dont-cheat

likely not play those final years after the age of 40. As a result, the team was hit with a $3 million dollar fine and the removal of several draft picks.[52]

While there are several Canadian franchises, the salaries of the NHL can only be paid in US dollar and not in any other currency. That causes potential currency fluctuations for Canadian teams since they run their daily operations in Canadian dollars. May not be relevant to the occurring turnover of a team itself but could be an underlying factor of inequality between American and Canadian franchise teams causing an advantage for American franchises as they do not have to address issues of currency conversion in their daily operations. Yet, it may also cause players in free agency to be less likely want to go to a Canadian team as they also have to pay Canadian income taxes while they receive their paychecks in USD. That may cause Canadian teams to may have more difficulties attracting players in free agency.

## Data & Methods

The data for this thesis were collected from the website Hockey Reference (hockey-reference.com) which archives official NHL statistics and information. The website is owned by Sports Reference LLC and the data is provided by Sportradar, an official statistics partner of the NHL. Since teams needed some time to adjust their franchise after the introduction of the cap, I decided to start my data collection in 2008/09. Additionally, one could arguably justify selecting any number of given years,

[52] AssoicatedPress. (2010, September 13). *Devils penalized over Kovalchuck deal*. Retrieved April 2020, from ESPN: https://www.espn.com/new-york/nhl/news/story?id=5569258 ; Ackert, K. (2010, September 14). *Ilya Kovalchuk's 17-year deal with New Jersey devils costs team $3M fines from the NHL plus draft picks*. Retrieved April 2020, from NY Daily News: https://www.nydailynews.com/sports/hockey/ilya-kovalchuk-17-year-deal-new-jersey-devils-costs-team-3m-fines-nhl-picks-article-1.438909

but there are several reasons that make focusing on the period of the NHL following the 2005 Collective Bargaining Agreement necessary in this study. Prior to this, the salary cap was not in place and would have caused issues between team assessments. Comparing teams that may have had completely different monetary capabilities to sign free agents would create a bias and could produce misleading results. Using teams that have the same monetary capabilities places the teams on the same playing field, so to speak. To ensure that the sample would be sufficiently large enough to detect any possible association between player turnover and team performance, I decided to collect not just one but several seasons' worth of statistics. The total sample includes 11 seasons (2008/09 to 2018/19) with a total of 330 observations.[53] Variables collected from this source include team rosters, team wins during the regular season, team wins during the playoffs, head coaches, and team and individual statistics.[54] Each of the coding for each variable can be found in **Tables 1.1** and **1.2** of the Appendix.

Preliminary analysis to determine if turnover is statistically associated with team performance was calculated through pooled correlation and lead-lag correlation analyses (see **Table 3** and **Table 4** in the Summary Statistics section), while the case study analysis draws upon other sources including official NHL team and player statistics, player transactions, personnel changes, and news media coverage. The correlation analyses are quantitative, while the case study analysis is a mix between quantitative

[53] The sample includes only 30 of the 31 NHL teams since the Las Vegas Knights have only been established as a franchise since November 2016 and did not start playing a regular NHL season until 2017/18.
[54] The data collect on each NHL player includes age, position, games played, goals, assists, points, +/-, penalty minutes, even strength goals, power play goals, short-handed goals, game-winning goals, even strength assists, power play assist, short-handed assists, shots on goal, shooting percentage, time on the ice, average time on the ice, offensive points shared, defensive points shared, point shares, blocks, hits, faceoff wins, faceoff losses, and faceoff win percentage.

(e.g., statistics) and qualitative (e.g. personalities, description of evens, and observations).[55]

My research, however, does experience some issues that could influence the results of my correlations and summary statistics. For example, the 2012/13 season was subject to a lockout year causing the NHL franchises to only play 48 games rather than the typical 82 regular season games. Since the 2012/13 season was cut in half, it is possible that the usual flow of calling up and sending down NHL players from/to minor leagues affected the teams. The reduced amount of games reduces the chance of injuries and the need for call ups, which in turn reduces the number of players having played for a team at season's end. This may skew the results.

Following the 2016/17 season, the teams were subjected to an expansion draft causing teams to experience involuntary turnover. However, I decided to include the season following the draft since not including it means that the effect is not equally distributed across conferences and divisions (i.e., teams incurred wins and losses because they play against them). I believe the effect would be minimal since only one of the eleven seasons is affected and therefore may be insignificant. Additionally, during the 1970's and 1990's several teams (i.e., two or three franchise at once) were introduced in a single season causing an even greater effect of involuntary turnover within the teams. In essence, the salary cap allows each team an equal opportunity of reaching the post season

[55] Since the 2000s' the leagues have been relatively stable (i.e., less involuntary turnover through expansions drafts) while during the 1970's and 1990's the NHL has experienced multiple expansions with added franchises which would have caused disruption within the sample and would have potentially required more adjustments to do comparisons between the teams. Source: [55] Klein, Cutler. (2016, June 22nd). *"From six teams to 31: History of NHL expansion."* NHL.com. Retrieved from https://www.nhl.com/news/nhl-expansion-history/c-281005106

and even winning the Stanley Cup Playoffs.[56] A second reason concerns sample size; eleven seasons are arguably more likely to be representative of trends in turnover and organizational performance than the most recent or a single season. By selecting a larger timeframe, I can ensure that my results will be more representative of the population than an analysis based on a single season or handful of seasons. Using a larger sample size allows me to better generalize my findings as it will be more representative of the population. If I were to choose a small sample, then I would have the opposite problem. For example, imagine I choose only seven different people at random to represent the population of the United States of America. The sample would not be representative of the actual population of the United States of America.

In the following section, I present summary statistics for the overall sample as well as the subsample of teams that were selected for in-depth case study analysis.

## Summary Statistics

**Table 1** below depicts the overall league averages, medians, and modes for the sampled number of games won, lost, and lost in overtime or shootout as well as the team turnover percentage.[57] On average, teams won approximately 40 of the 82 games during

[56] Schmiedeberg, J. (2010, April 28). *NHL Analysis: Understanding the Salary Cap*. Retrieved July 2019, from Blueshirt Banter: https://www.blueshirtbanter.com/2010/4/28/1448124/nhl-analysis-understanding-the; CapFriendly. (15, July 2019). *Frequently asked Questions*. Retrieved August 2019, from CapFriendly: https://www.capfriendly.com/faq; NHL. (2019). *Collective Bargaining Agreement FAQs*. Retrieved July 2019, from NHL: http://www.nhl.com/ice/page.htm?id=26366; Sportsnet. (2019). *Salary and Contract Glossary* . (CapFriendly, Producer) Retrieved July 2019 , from Sportsnet: https://www.sportsnet.ca/hockey/nhl/salary-contract-glossary/; PuckPedia. (2019). *Everything You Want to Know About Your Favorite NHL Teams*. Retrieved June 2019, from PuckPedia: https://puckpedia.com/teams; Hofer, M. (2013-2019). *NHL Explained: The Salary Cap* . Retrieved from Swiss Hockey Blogs: https://swisshockeynews.ch/index.php/swisshockeyblogs-ch/65-nhl-explained/8124-how-does-the-salary-cap-work

[57] In overtime, both teams play another five minutes with only four players being on the ice from each team. The team who scores first during the overtime wins the game. The shootout happens if both teams were unable to score as the NHL eliminated ties (2005/06). In the shootout each team gets to pick three players that will try to shoot onto the net. The team that scores all three wins the game. However, if both teams make all three in then the shootout will continue until one team misses. Important is however that each player can only be used once unless the shootout goes into another round. Source: http://www.nhl.com/ice/page.htm?id=26395

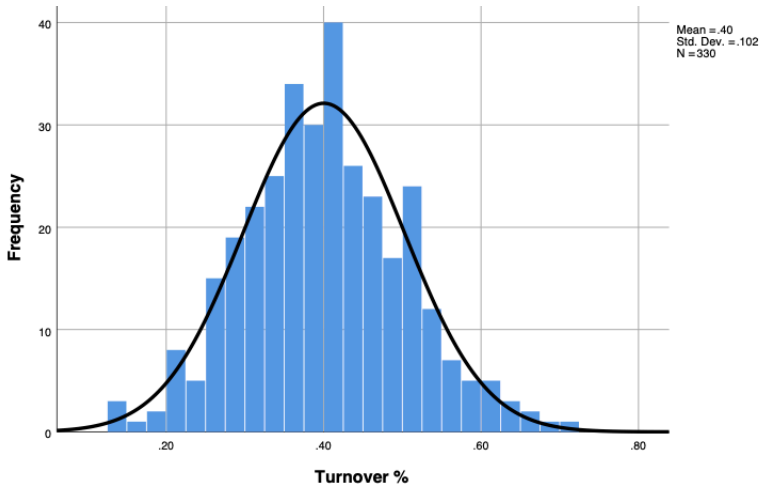
the regular season, meaning that any team that won more than 40 games per season could be considered statistically above average. The truncated 2012/13 season may have skewed the averages downward. Also noteworthy is that having at least 40% player turnover within a team seems to be typical. **Table 1.3** of the Appendix lists additional and season specific league averages.

**Table 1: Summary Statistics of the full Sample (Total Observations)**

| Variable Name | Mean | Median | Mode | Standard Deviation | Min | Max |
|---|---|---|---|---|---|---|
| **Reg. Games Won** | 39.42 | 40.5 | 46 | 8.67 | 15 | 62 |
| **Reg. Games Lost** | 30.18 | 30 | 30 | 7.59 | 7 | 56 |
| **Reg. Games Lost OT** | 9.31 | 9 | 11 | 3.08 | 0 | 18 |
| **Reg. Win %** | 0.50 | 0.50 | 0.56 | 0.09 | 0.26 | 0.76 |
| **Reg. Loss %** | 0.38 | 0.37 | 0.37 | 0.08 | 0.15 | 0.68 |
| **Reg. Loss OT %** | 0.12 | 0.12 | 0.13 | 0.04 | 0 | 0.22 |
| **Turnover %** | 0.40 | 0.40 | 0.33 | 0.10 | 0.13 | 0.72 |

*Source:* Compiled by author based on Hockey-Reference.com

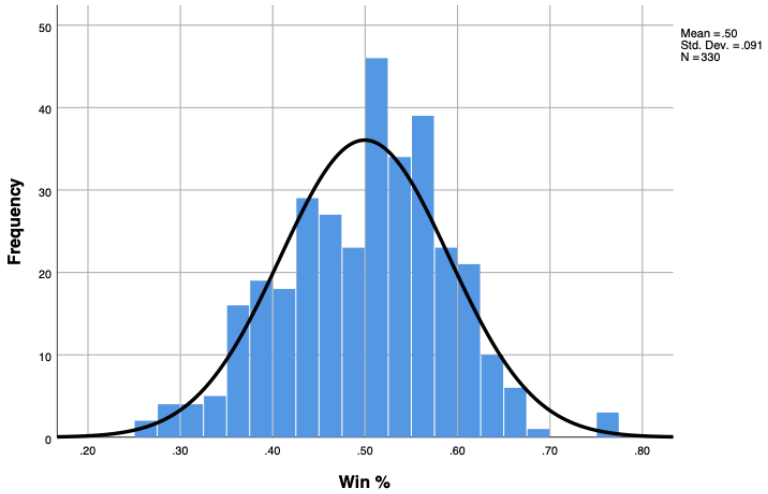
**Graph 1: Frequency Distribution Turnover %**




*Source:* Compiled by author based on Hockey-Reference.com

**Graph 1** suggests player turnover is fairly normally distributed with an average turnover of $\bar{x} = 40\%$. for the eleven seasons sampled. The absence of extreme values is demonstrated by the fact that the mean and median turnover percentages are virtually identical. Virtually, the mean and the median of the data are identical (40%), therefore the data set is more likely to be evenly distributed from the lowest to the highest values.

**Graph 2: Frequency Distribution Win %**




*Source:* Compiled by author based on Hockey-Reference.com

The following **Graph 2** indicates that the distribution of team win percentages are slightly right-skewed; however, maturity majority of the values still seem to follow a fairly normal distribution. The graph also reveals outliers or extreme values located between 0.70 and 0.80 (i.e., TBL 72%), on the frequency graph shown above.

## *Correlation*

The Pearson product-moment correlation coefficient $(r)$ is a statistical measure used to determine the strength of the relationship or association between two continuous variables.[58] The correlation coefficient provides not only a sense of the direction of an association $(+/-)$, but also the strength or magnitude of the association between variables. However, correlations only indicate the strength and direction of association and do not necessarily imply a causal relationship between variables. Nor do correlations eliminate the possibility of a third or more confounding variables. For example, It is possible that observations of a given NHL team's win percentage could also conceivably be statistically dependent upon location, relationship to the coach/ fellow players, free agency, player contracts, knowledge transfer, cohesion, task interdependence, or managerial turnover. In addition, a correlation assumes that there is a linear relationship between the variables and that all observations are independent.[59] **Graphs 1.2** through **1.7** (see Appendix) indicate that there does in fact appear to be a linear relationship between the selected variables of turnover and win percentage (see also **Graph 4** in the Summary Statistics section).

The Pearson product-moment correlation coefficient is calculated by the following equation[60]:

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[58] Jäntschi, L., & Bolboaca, S.-D. (n.d.). Pearson versus Spearman, Kendall's Tau Correlation Analysis on Structure-Activity Relationships of Biologic Active Compounds. *Leonard Journal of Science, 9* .;Hauke, J., & Kossowski, T. (2011). Comparison of Values of Pearsons and Spearman's Correlation Coefficients on the Same Set of Data. *Quaestiones Geographicae, 30 (2)*, 87-93.

[59] Havlicek, L., & Peterson, N. (1976). Robustness of the Pearson Correlation against Violations of Assumptions. *Perceptual & Motor Skills, 43 (Supplemental 3)*, 1319-1334; Havlicek, L., & Peterson, N. (1977). Effect of the Violations of assumptions upon significance levels of the Pearson r. *Psychology Bulletin, 84(2)* , 373-377; Agresti, A., & Finlay, B. (1999). Linear Regression and Correlation. In *Statistical Methods for the Social Science* (pp. 318-326). Upper Saddle River, NJ: Prentice Hall Inc.

[60] Parker, J. A. (2012). Distributed-Lag Models. In J. A. Parker, *Learning Time-Series Econometrics* (pp. 35-54). Portland, OR: Reed College.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}},\ -1 \leq r \leq 1$$

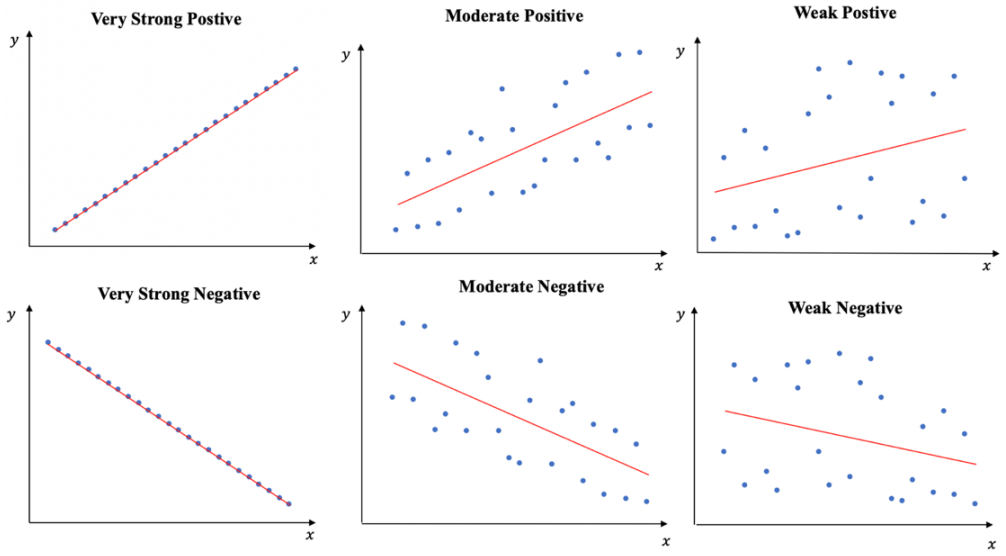
$x = reg.Win\ \%\ Values$

$y = Turnover\ \%\ Values$

$n = Total\ number\ of\ Observations$

The equation above shows how Excel's function "CORREL" was used to calculate the correlation for the $x$ variable, i.e., regular season win percentage, and the $y$ variable, i.e., turnover. The process was repeated with the variables representing regular loss percentage and turnover. The correlation coefficient of the calculation will be in the range of $-1 \leq r \leq 1$, with $r = -1$ signifying a *perfect* negative correlation, 0 representing no correlation, and 1 being a *perfect* positive correlation between the $x$ and $y$ variables. A positive correlation means that the two variables move in the same direction, while a strong negative correlation coefficient means that the two variables move in opposite directions. If the correlation coefficient $r = 0$, then that simply means that there is neither a positive nor a negative association between the two variables. The spread of the scatterplot is a visual depiction of the correlation coefficient that displays how strong positive or negative the correlation between the variable is. I will be using **Graph 3** to determine the type of relationship between my variables (i.e., strong, moderate, weak) and **Table 2** presents how I will be interpreting the magnitude of my correlation coefficients.

**Graph 3: Interpreting Correlation Magnitude and Direction**




*Source:* Based on Schrober *et. al* (2018*),* Mukaka (2015), Pawar (2018)

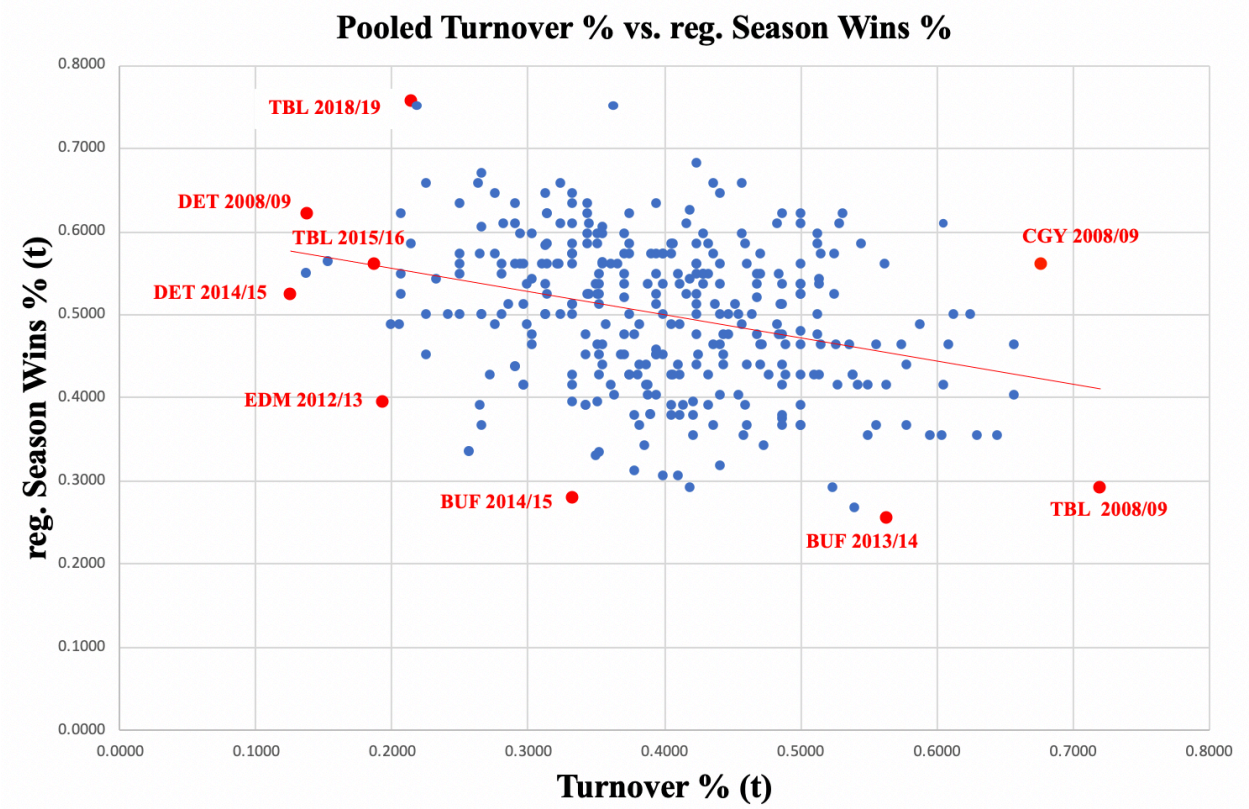
**Table 2: Interpretation of Correlation Coefficients**

| Magnitude of the Observed Correlation Coefficient | Interpretation |
|---|---|
| **+/ - 0.00 – 0.10** | Negligible Correlation |
| **+/ - 0.11 – 0.39** | Weak Correlation |
| **+/ - 0.40 – 0.69** | Moderate Correlation |
| **+/ - 0.70 – 0.89** | Strong Correlation |
| **+/ - 0.90 – 1.00** | Very Strong Correlation |

*Source:* Schrober *et. al* (2018)

Below, **Graph 4** displays a scatterplot of contemporaneous correlation between turnover and regular season win percentages at time $(t)$ over the period from 2008/09 to 2018/19.

**Graph 4: Correlation of pooled Sample btw. reg. Season Win % and Turnover %**




*Source:* Compiled by author based on Hockey-Reference.com

Examining the scatterplot, one can see that the points are clustered around the average turnover and regular season win percentages. Several observation points are scattered far outside the cluster ranging from around 30% to 72% turnover and a win percentage ranging from 30% to about 76%. The red points in the scatterplot are datapoints that correspond to teams/seasons that deviate from either or both averages (i.e., turnover %, win %). Later, in the case study section that follows the summary statistics section, I will be more closely investigating these nine points that correspond to five different teams (Tampa Bay Lightning, Detroit Red Wings, Calgary Flames, Edmonton Oilers, and Buffalo Sabres) in order to examine whether there are any

observable factors that may explain a) why they are so far away from the mean win percentage and/or turnover percentage, and b) how such teams can have comparable values of one variable (e.g., turnover) yet remarkably different corresponding values of the other (e.g., win percentage). All of the teams selected for case study analysis are listed in **Table 1.4** of the Appendix.

**Table 3: Correlations Coefficients**

| Time | X-variable | Y-variable | Correlation ($r$) |
|---|---|---|---|
| $t$ | Reg. Win % | Turnover % | $-0.31$ |
| $t$ | Reg. Loss % | Turnover % | $+0.33$ |
| $t$ | Reg. OT/Shootout Loss % | Turnover% | $+0.02$ |
| $t$ | Reg. Win% | Consistency % | $+0.30$ |
| $t$ | Reg. Loss % | Consistency % | $-0.32$ |
| $t$ | Reg. OT/Shootout Loss % | Consistency % | $-0.01$ |

**Table 3** represents the contemporaneous correlation coefficients of the pooled data set. The coefficient indicates that there is a weak-to-moderate negative correlations between turnover and regular win percentage. On the other side, win percentage and the consistency percentage (i.e., players who remain the organization) shows a weak-to moderate positive correlation.

## *Lead-Lag Correlations*

While a Pearson product-moment correlation can be used to measure the strength and direction of association between two variables, it does not account for the possibility of a delayed or lagging association that occurs over time. For example, if team win percentage is negatively correlated with the turnover rate, it is quite possible, if not probable, that the effect is not immediate but delayed or lagged. After all, turnover occurs throughout much, if not most, of the year versus all at once, and if a team is playing badly

it is not as if most players are going to be able to immediately leave to seek to play elsewhere. Contracts, salary caps, free agency status and trade deadlines significantly limit when and where a player can move. Equally plausible is the hypothesis that the negative effect on team performance lags behind player turnover, describing the way in which a significant restructuring or rebuilding of a franchise typically occurs over several seasons.

If this is the case, then a lead-lag correlation may be a better way of examining the association between player turnover and team performance. A *lead-lag correlation* tests whether a leading variable has a correlation with the value of a lagging variable at a later point in time. The following equation expresses a general simple linear system of lead-lag:

$$y(t) = X(t - k), k = 1,2$$

Which variable is designated as the lead or lag variable results in two different types of predictions.[61] If player turnover is the lagging variable – as is hypothesized – then the model is estimating its association with today's team performance (i.e., win percentage). For example, if I am comparing $Y(t)$ and $X(t-1)$, assuming $Y = Win\ \%$ and $X = turnover\ \%$, then I am saying that last year's turnover is impacting this year's win percentage by $r = -0.16$ (see **Table 4**). In other words, 2008/09's turnover percentage is negatively affecting 2009/10's win percentage. Conversely, if team

[61] Salih, N. N. (1979). Lead-Lag Relations, Exogenerity and Prediction of Economic Time Series. *Econometrica , 47 (1)* , 101-113.

performance is the lagging variable, then the model is estimating the association with subsequent player turnover.

**Table 4** represents the first scenario in which the player turnover of the previous year $\mathrm{Y}(t)$ is negatively affecting 2009/10's ($X(t-2)$) and 2010/11's ( $X(t-1)$) win percentage. The results suggest that while there is an immediate weak-to-moderate negative correlation between player turnover and team win percentage, the association diminishes by nearly half each following season and is virtually nonexistent by the third season (i.e., $t-2$).

**Table 4: Lead-Lag reg. Season Win %**

| Time | X-variable | Y-variable | Correlation ($\boldsymbol{r}$) |
|---|---|---|---|
| $\boldsymbol{t}$ | Reg. Season Win % | Turnover % | $-0.31$ |
| $\mathbf{t-1}$ | Lagged reg. Season Win % | Turnover % | $-0.16$ |
| $\mathbf{t-2}$ | Lagged reg. Season Win % | Turnover % | $-0.09$ |

*Source:* Compiled by author based on Hockey-Reference.com

**Table 5** represents the reverse scenario in which in which win percentage of the previous yeas $Y(t)$ is negatively affecting 2009/10's ($X(t-2)$) and 2010/11's ( $X(t-1)$) player turnover over the following two seasons. The magnitude and direction of the estimated correlation is virtually identical to that listed in **Table 4** and suggests the weak-to-moderate negative correlation between player turnover and team win percentage declines at a rate of approximately half each subsequent season.

The **Table 1.6** to **Table 1.9** of the Appendix will show how for both scenarios the turnover and win percentages were matched with each other. The **Tables 1.6** and **1.7**

refer directly to the values seen in **Table 4**, and the **Tables 1.8** and **1.9** refer to directly to thee values seen in **Table 5**.

**Table 5: Lead-Lag Turnover %**

| Time | X-variable | Y-variable | Correlation ($r$) |
|---|---|---|---|
| **t** | Turnover % | Reg. Season Win % | $-0.31$ |
| **t − 1** | Lagged Turnover % | Reg. Season Win % | $-0.15$ |
| **t − 2** | Lagged Turnover % | Reg. Season Win % | $-0.08$ |

*Source:* Compiled by author based on Hockey-Reference.com

In short, while both hypothesized relationships are plausible, the estimated association between the two variables diminishes over time, suggesting that whatever weak-to-moderate effect one leading variable has on the lagging other, by the third year the association is virtually nonexistent. In other words, the negative correlation between the two variables is fairly short-lived, suggesting the hypothesized effect of one on the other is momentary.

However, I am unable to tell what is causing this reversed causality and can only speculate why these variables have this two-way dynamic. The case study analysis of five different NHL teams with different levels of turnover and win percentage might shed some light on what could potentially explain this two-way dynamic even if they will only be hypothetical and circumstantial and do not prove directly causality.

My initial expectation was that I would see positive versus negative effects when looking at the relationship between turnover and team performance. This is somewhat consistent with the literature as several researches have associated turnover with both positive and negative effects. For example, Dess *et al.* (2001) suggested that the loss of

human capital will negatively affects team's performance as the organization loses the experience and familiarity of the employees with the firm and has to spend time with training new incoming employees.[62] Additionally, I was somewhat surprised that the NHL has an average turnover rate in my sample of 40%. I was expecting that team would try to keep turnover low as the NHL is a highly interdependent sports organization and high turnover rates would cause a disruption within the team as new and remaining players have to rebuild coherence and coordination to bundle their effort to reach the desired outcome of winning games.[63] However, in retrospect it makes sense that an NHL franchise would have such a high turnover rate as every year new players will be added to the market through the NHL drafts and other player will be retiring from the league. As Staw (1980) stated, turnover allows an organization to adapt to their environment through the reallocation of organizational resources.[64] Illmakunnas *et al.* (2005) sees turnover as the process of matching the right people with each other.[65] Therefore, having a higher average turnover rate seems reasonable. I was also expecting that teams with lower turnover rates would record better win percentages. Looking at Graph 4, the scatter plot visually shows several coordinates at which teams have recorded both low turnover rates with high win percentage. That is also consistent with the literature as Barreira *et al.* (2019) suggest that lower turnover rates may be beneficial for a team's performance.[66]

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[62] Dess, G. G., & Shaw, J. D. (2001). Voluntary Turnover, Social Capital, and Organizational Performance. *The Academy of Management Review, 26, no. 3*, 446-456.
[63] Davis, J. L., Fodor, A., Pfahl, M. E., & Stoner, J. (2014). Team Interdependence and Tunover: Evidence from the NFL. *American Journal of Business , 29, No. 3/4*, 276-292.
[64] Staw, B. (1980). The Consequences of Turnover. *Journal of Occupational Behavior (Pre-1986), 1 (4)* , 253-273.
[65] Illmakunnas, P., Maliranta, M., & Vainiomäki, J. (2005). Worker Turnover and Productivity Growth . *Applied Economics Letter , 12, no. 7*, 395-398.
[66] Barreira, J., Sousa, G. C., & Galatti, L. R. (2019). Player Turnover and Team Performance in FIFA Women's World Cup . *The Journal of Physical education , 25, No. 3*, 1-6

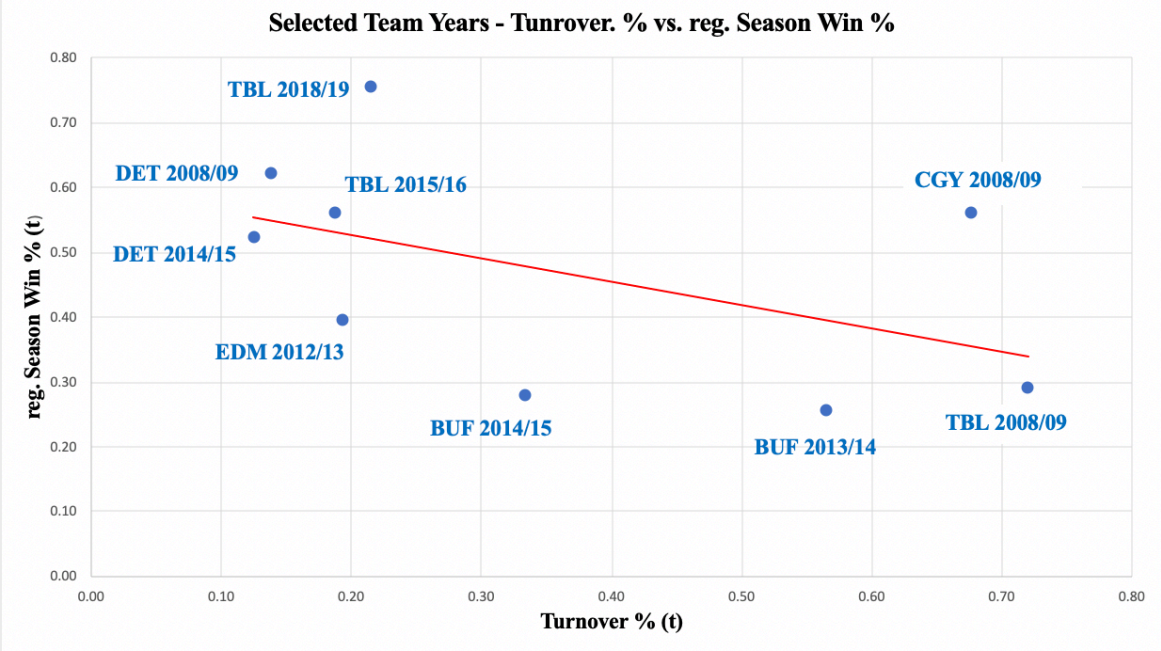
Yet, the scatter plot shows that is not always the case and raises the question of how some teams have remarkably high turnover and still have a win percentage above 50%. March and Simon (1958) suggested that high turnover is either indicating that there is a highly competitive labor market and/ or that an organization may be badly run which causes the high turnover rates as employees for alternative jobs if there is an easement of getting a new job when they are not satisfied in their current job.[67]

[67] March, J., & Simon, H. (1958). *Organizations.* Oxford England: Wiley.

## Case Studies

Although much of the literature suggests that turnover has a significant negative effect on team performance, the aforementioned results of the correlation analysis indicate only a small-to-moderate statistically significant negative correlation between player turnover and team performance.

**Graph 5: Scatterplot selected Teams only**




*Source:* Compiled by author based on Hockey-Reference.com

A second puzzling finding is that while there was some measurable correlation between turnover and team performance, there was a considerable degree of variation. As shown in **Graph 5**, teams with roughly equal rates of player turnover ended the season with markedly different win percentages, for example, the Detroit Red Wings (2008/09) and the Edmonton Oilers (2012/13), had roughly the equivalent rates of turnover (i.e., DET 13.79% vs. EDM 19.35%), but widely different win percentages (i.e., DET

62.20%, EDM 39.58%).[68] Likewise, teams with comparable season records experienced varying degrees of turnover; for example, Tampa Bay Lightning (2018/19) and the Calgary Flames (2008/09). Both teams had a win percentage above 55% (i.e., TBL 75.61% vs. CGY 56.10%), however each of them had completely different turnover rates (i.e., TBL 21.43% vs. CGY 67.65%). This raises an important question: how can teams with comparable rates of turnover result in such varying outcomes in terms of team performance, and vice versa? In short, *why is there so much variation across teams*?

In order to explore what factors might explain such differences, I selected a subsample of teams with relatively high rates of turnover and/or team performance for further in-depth case study analysis, with the idea that closely examining two teams that are comparable in one respect (i.e., turnover) might reveal why they are measurably different in the other (i.e., win percentage). **Table 1.11** of the Appendix provides some basic background information about changes in ownership, team management, and coaching for each of the teams selected. In the following sections, I provide a detailed, in-depth case study analysis of each of the teams selected, drawing upon official NHL statistics and news articles and integrating relevant academic literature and research to describe how and why player turnover affected teams differently in terms of win percentage.

[68] The entire scatterplot of the total sample can be found in **Graph 4** of the Summary Statistics section.

## *Team Specific Summary Statistics*

**Table 6: Mean of selected Seasons**

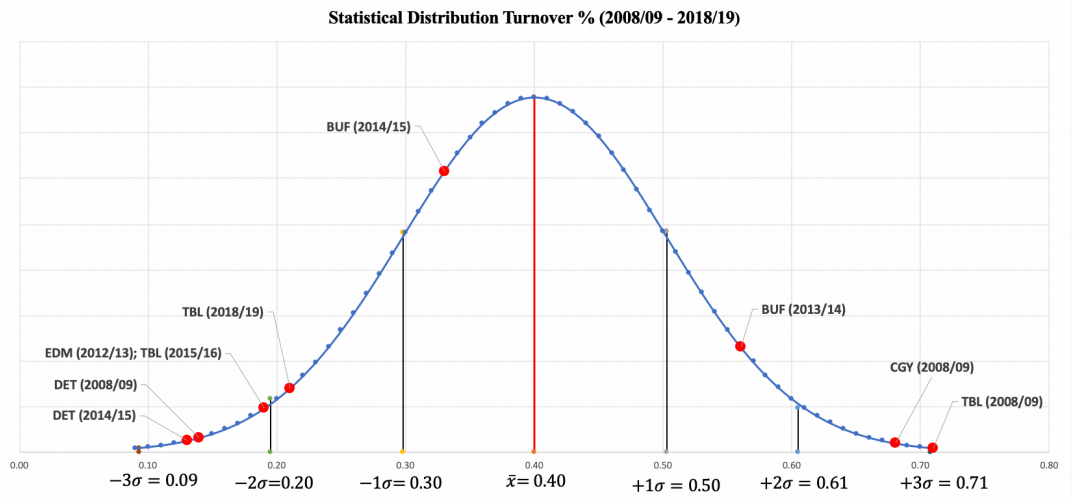
| Team | Season | Turnover | Win Percentage | Mean Turnover % (League) | Mean Win % (League) |
|---|---|---|---|---|---|
| **Tampa Bay Lightning** | 2008/09 | 72.00% | 29.27% | 42.00% | 50.00% |
| **Tampa Bay Lightning** | 2015/16 | 18.75% | 56.10% | 42.91% | 50.00% |
| **Tampa Bay Lightning** | 2018/19 | 21.43% | 75.61% | 37.93% | 49.92% |
| **Detroit Red Wings** | 2008/09 | 13.79% | 62.20% | 42.00% | 50.00% |
| **Detroit Red Wings** | 2014/15 | 12.50% | 52.44% | 39.74% | 50.04% |
| **Calgary Flames** | 2008/09 | 67.65% | 56.10% | 42.00% | 50.00% |
| **Edmonton Oiler** | 2012/13 | 19.35% | 39.58% | 34.74% | 50.00% |
| **Buffalo Sabres** | 2013/14 | 56.41% | 25.61% | 40.78% | 50.00% |
| **Buffalo Sabres** | 2014/15 | 33.33% | 28.05% | 39.74% | 50.04% |

*Source:* Compiled by author based on Hockey-Reference.com

**Table 6** presents each team selected for case study analysis and statistics from their corresponding regular NHL season by showing the actual turnover and win percentage each team has had in comparison to the average league turnover and win percentage of the selected season. The mean win percentage by season for the entire league is for each selected team, give or take 1%, almost every season about 50%, while the average league turnover ranges from 37% to almost 43%. All other turnover rates and win percentages can be found in **Table 1.5** of the Appendix. Significantly only two teams, i.e., the Tampa Bay Lightning (2018/19) and the Detroit Red Wings (2008/09) recorded a win percentage above 60%, falling beyond one standard deviation $(+1\sigma)$ of the average win percentage of 50% **(see Graph 7)**. At the same time, those teams achieved turnover of 20% (or more) lower than the average league roster turnover of 40.02%. The 2012/13 Edmonton Oilers is the only other team that recorded a turnover

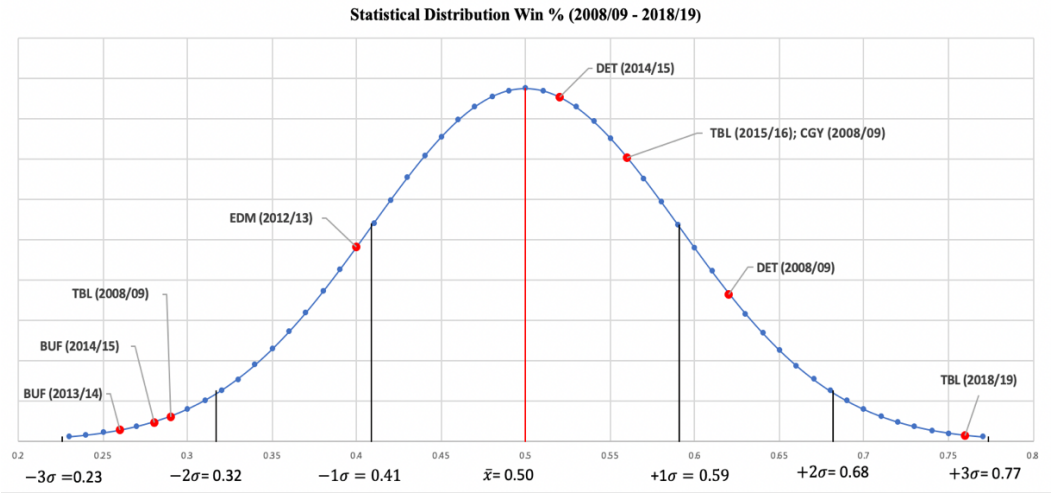
below 20%, falling beyond two standard deviations ($-2\sigma$) from the league mean of roughly 40%.

**Graph 6: Statistical Distribution Turnover % from (2008/09 to 2018/19)**




*Source:* Compiled by author based on Hockey-Reference.com

**Graph 7: Statistical Distribution Win % from 2008/09 to 2018/19**




*Source:* Compiled by author based on Hockey-Reference.com

**Graph 6** and **7** depicts the statistical distribution of turnover percentages and win percentages for all 30 NHL teams from the 2008/09 to the 2018/19 season. In the following section, I will be analyzing the following teams and their corresponding years: Tampa Bay Lightning (2008/09, 2015/16, 2018/19), Detroit Red Wings (2008/09, 2014/15), Calgary Flames (2008/09), Buffalo Sabres (2013/14, 2014/15), and the Edmonton Oilers (2012/13) not only to see if they can give some insight of what could be the cause of the two-way dynamic between turnover and win percentage, but also what factors may explain the impact of turnover of team performance on a case-to-case basis.

**Table 7: Summary Statistics by selected Team**

| Variable Name | Mean | Median | Mode | Standard Deviation | Min | Max | Total Observations |
|---|---|---|---|---|---|---|---|
| **TBL (Turnover %)** | 0.42 | 0.49 | 0.23 | 0.18 | 0.19 | 0.72 | 11 |
| **TBL (Win %)** | 0.50 | 0.56 | 0.56 | 0.13 | 0.38 | 0.76 | 11 |
| **DET (Turnover %)** | 0.28 | 0.30 | 0.34 | 0.09 | 0.13 | 0.39 | 11 |
| **DET (Win %)** | 0.50 | 0.50 | 0.50 | 0.08 | 0.37 | 0.62 | 11 |
| **CGY (Turnover %)** | 0.45 | 0.43 | N/A | 0.09 | 0.33 | 0.68 | 11 |
| **CGY (Win %)** | 0.49 | 0.47 | 0.45 | 0.07 | 0.40 | 0.61 | 11 |
| **EDM (Turnover %)** | 0.41 | 0.42 | N/A | 0.11 | 0.19 | 0.61 | 11 |
| **EDM (Win %)** | 0.40 | 0.39 | N/A | 0.08 | 0.29 | 0.57 | 11 |
| **BUF (Turnover %)** | 0.38 | 0.40 | N/A | 0.11 | 0.21 | 0.56 | 11 |
| **BUF (Win %)** | 0.42 | 0.43 | 0.40 | 0.10 | 0.26 | 0.55 | 11 |

*Source:* Compiled by author based on Hockey-Reference.com

**Table 7** displays the summary statistics for turnover and win percentage for each of the teams selected for case study analysis. By looking at the averages for each team, I am providing another comparison value and a bit more context about the entire team. Overall, some of these teams were selected as their corresponding season values deviate (located beyond $-/+1\sigma$) from the league averages for turnover and/ or win percentage

while other showed an interesting combination of turnover and win percentages (e.g., high/low, low/high, low/low, high/high) Additionally, each of the teams had varying levels of turnover and win percentages associated with each other (i.e., low turnover, high win percentage; high turnover, low win percentage; high turnover, high win percentage; low turnover, low win percentage).

While some of the points on the scatterplots also seem interesting, given the limited time, I decided to only focus on five teams and included specifically teams that had several seasons with interesting levels of turnover and win percentages. Lastly, to be able to compare different teams with each other, I decided to focus on teams that were either similar in the level of turnover, but had a different win percentage outcome or vice versa. The subject of collective turnover has gained increasing recognition by researchers who argue that collective turnover can have vital consequences for an organization's productivity and performance including, for example, reduced profits, decreased sales, lower revenue growth, reduced efficiency, and decreasing task cohesion.[69] However, the aforementioned literature largely fails to emphasize the role and influence of management on organizational turnover. While social capital, trust, human capital, knowledge transfer, coordination, task interdependence is perhaps relevant to

[69] Batt, R. (2002). Managing Customer Service: Human Resources Practices, Quit Rates, And Sales Growth. *Academy of Management Journal, 45, No. 3*, 587-597; Hancock, J. I., Allen, D. G., Bosco, F. A., McDaniel, K. R., & Pierce, C. A. (2011). Meta-Analytic Review of Employee Turnover as a Predictor of Firm Performance. *Journal of Management, 39, no.3*, 573-603; Hausknecht, J. P., & Holwerda, J. A. (2013). When Does Employee Turnover Matter? Dynamic Member Configurations, Productive Capacity and Collective Performance. *Organizational Science, 24, no. 1,* 210-225; Hausknecht, J. P., & Trevor, C. O. (2011, January). Collective Turnover at the Group, Unit and Organizational Levels: Evidence, Issues, Implications. *Journal of Management, 37, no. 1*, 352-388; Nyberg, A. J., & Polyhart, R. E. (2013). Context-Emergent Turnover (CET) Theory: A Theory of Collective Turnover. *Academy of Management Review, 38, No. 1*, 109; McElroy, J. C., Morrow, P. C., & Rude, S. N. (2001). Turnover and Organizational Performance: A Comparative Analysis of the Effects of Voluntary, Involuntary, and Reduction-in-Force Turnover. *Journal of Applied Psychology, 86, No. 6,* 1294-1299; Shaw, J. D. (2011, August). Turnover Rates and Organizational Performance: Review, Critique, and Research Agenda. *Organizational Psychology Review, 1, no. 3*, 187-213; Shaw, J. D., Duffy, M. K., Johnson, J. L., & Lockhart, D. E. (2005). Turnover, Social Capital Losses, And Performance. *Academy of Management Journal, 48, No. 4*, 594-606; Shaw, J. D., & Gupta, N. (2007). Pay Systems Characteristics and Quit Patterns of Good, Average and Poor Performers. *Personell Psychology, 60*, 903-928.

understanding turnover, many of these factors, if not all, are actively shaped by management and managerial decisions. This holds true in the context of professional hockey in the National Hockey League (NHL) as well; team chemistry, player skill, and task interdependence may play an important role in determining the outcome of a given game, but team management largely controls the process of player turnover - who the team drafts, whether they sign a free agent, who they let walk as a free agent when a contract expires, who they risk giving long term contracts to, and if and when to make a trade or sign a free agent. In short, most of the entrances and exits of players from NHL teams are largely shaped by managerial decisions. The management's actions will directly influence how turnover will affect a team's performance because their vision and strategy are guiding the team and will direct the focus of the team's actions. I can only speculate on what characteristics make up a "good" or "bad" manager since it may be intangible for me to measure. However, I can assume that if a team is winning that the manager must be doing something right given that typically coaches or managers are fired if the performance of the team does not meet the expectations.[70] In the next section, I examine how managerial decision-making actively influenced turnover that in turn affected teams' performance to varying degrees as well as looking at general events that may explain the variations between the teams.

[70] Allen, W. D., & Chadwick, C. (2012). Performance, Expectations, and Managerial Dismissal: Evidence From the National Football League . *Journal of Sport Economics*(13, No. 4), 337-363.

First, I will be examining the Tampa Bay Lighting (2008/09, 2015/16, 2018/19), followed by the Detroit Red Wings (2008/09, 2014/15), the Calgary Flames (2008/09), Buffalo Sabres (2013/14, 2014/15), and lastly the Edmonton Oilers (2012/13).

## Tampa Bay Lightning

The Tampa Bay Lightning (TBL) was selected for case study analysis since the team had three seasons in which different levels of turnover and win percentages (e.g., high turnover, low win percentage vs. low turnover, high win percentage). In the 2008/09 season, the team experienced 72% player turnover and a win percentage of 29.27%, while nearly a decade later in 2015/16 and 2018/19 the team experienced significantly lower turnover and a markedly increased win percentage. Specifically, during the 2015/16 season the team experienced 18.75% player turnover and ended the season with a corresponding win percentage of 56.10%, while in 2018/19 the team had a turnover rate of 21.43% and a corresponding win percentage of 75.61%.

In the following sections, I describe factors (e.g., events, managerial decisions) that may help to explain why this team not only experienced poorer performance in terms of win percentage compared to other teams with similar rates of turnover, but also why the team experienced such dramatically different outcomes within just a decade's time.

### 2008/09 Season

#### *Managerial Turnover*

Following the conclusion of the 2007/08 season, the TBL made several major managerial changes within the franchise. After the 2007/08 season, the team parted ways

with 2004 Stanley Cup-winning head coach John Tortorella, who still had one more year on his contract, and hired former player and TV analyst Barry Melrose as head coach.[71] Melrose, who had an undistinguished career as a defenseman over seven seasons in the NHL, followed his playing career as a head coach leading teams in the Western Hockey League (WHL) and American Hockey League (AHL) to championship titles over the course of eight years before turning to a career in broadcasting as a TV analyst. Yet, at the time he was hired, he had not coached an NHL team for over a decade. Accordingly, the owners' decision to replace John Tortorella with Melrose was widely questioned by sports reporters and NHL analysts. As *Sports Illustrated* columnist Adam Muir (2008) noted,

> "[L]et's be honest. If you're out of the game for 15 years, as was Melrose, you're coming in at a distinct disadvantage. Doesn't matter we're talking accounting or beer-making or automotive repair or hockey. The times change, and without being actively involved, it's hard to catch up. Especially in just 15 games."[72]

Since Melrose's last season coaching the Los Angeles Kings in 1995, the NHL had changed in significant ways. For example, the allowable stick length increased five inches, the two-line pass rule was eliminated, and significant changes were made to rules

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[71] Tortorella would go on to receive the Adams Trophy a second time in 2016/17 as head coach of the Columbus Blue Jackets, making him one of only five NHL coaches to receive the award with two different teams, https://www.nhl.com; NHL. (2008, June 3). *Tortorella fired as coach of Tampa bay Lightning*. Retrieved October 2019, from NHL.com: https://www.nhl.com/news/tortorella-fired-as-coach-of-tampa-bay-lightning/c-378626

[72] Muir, A. (2008, November 14). *This circus was doomed from start*. Retrieved March 2020, from Sport Illustrated: https://www.si.com/more-sports/2008/11/14/melrose-firingreaction

regarding off-sides, icing, line changes, goaltending, and overtime.[73] Melrose had last coached in an era known as the "clutch-and-grab" or "dead puck" years when the ideal professional hockey player was big and play was physical. By the time he returned to the league, the players were faster, and the goalies were larger and more athletic.[74] The aforementioned rule changes had resulted in a faster, higher-scoring game where coaches couldn't rely on physical players to slow downplay by hooking or holding forwards.

Indeed, hiring Melrose turned out to be a disaster; he lasted only sixteen games with the team posting a 5-7-4 record before he was fired and replaced by Rick Tocchet as interim head coach.[75] Among other things, the ownership publicly accused Barry Melrose of negligence in preparing for the season. Specifically, owner Len Barrie told the *Times*,

> "But my thing is you're paid to do a job, and he didn't do it from day one. How he came in and prepared for this job was total negligence."[76]

Further details regarding the dispute between the ownership and Melrose were not publicly disclosed.[77] Yet, once the management realized that Melrose turned out to be a coaching failure, the team cut their losses right away, similar to what Allen *et al.* (2012)

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[73] NHL. (2020). *Historic Rule Changes* . Retrieved April 2020, from Records.NHL.com: https://records.nhl.com/history/historical-rule-changes

[74] DownGoesBrown. (2015, November 16). *Clutch-and-grab is dead, and the NHl killed it*. Retrieved April 2020, from Down Goes Brown : http://www.downgoesbrown.com/2015/11/clutch-and-grab-is-dead-and-nhl-killed.html

[75] ESPN. (2008, November 14). *Toccet to take over as interim coach after Melrose gets fired*. Retrieved November 2019, from ESPN: https://www.espn.com/nhl/news/story?id=3703077

[76] ESPN. (2008, December 11). *Melrose, Bolts still at odds*. Retrieved October 2019, from ESPN: https://www.espn.com/nhl/news/story?id=3762151

[77] ESPN. (2008, November 14). *Toccet to take over as interim coach after Melrose gets fired*. Retrieved November 2019, from ESPN: https://www.espn.com/nhl/news/story?id=3703077 ; ESPN. (2008, December 11). *Melrose, Bolts still at odds*. Retrieved October 2019, from ESPN: https://www.espn.com/nhl/news/story?id=3762151; Cristodero, D. (2008, December 11). *Barrie Accuses Melrose of 'Total Negligence'*. Retrieved March 2020, from Tampa Bay Times: https://www.tampabay.com/archive/2008/12/11/barrie-accuses-melrose-of-total-negligence/

suggested in their empirical work, specifically that managerial turnover is expected if a team does not live up to performance expectations. But in the case of Melrose that was not the only problem.[78]

Melrose might have known how to coach the LAK in 1995 all the way to the Cup because he knew the rules of the game then, but over the years changes in rules created a gap of knowledge, if not understanding. In short, he might have been *aware* of the new rules, but did not know *how* to coach the team accordingly to the new rule changes. He went from being an observer to a performer and underperformed his way to a quick departure.

Argot and Epple (1990) state that the knowledge required for completing a certain task of the production of a good or service can also depreciate. For example, it is possible that knowledge depreciation can be caused by forgetting how to do the task or such as when an experienced employee is replaced by a one with far less experience (e.g., Tortorella vs. Melrose), resulting in the organization's being thrown back to an earlier stage of the learning curve.[79]

However, deciding who is considered an experienced or inexperienced coach is not easily measured and may appear to be subjective in the eye of the beholder. On the contrary, Staw (1980) argues that turnover allows an organization to adapt to the environment due to the reallocation of organizational resources.[80] Yet, he fails to consider

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[78] Allen, W. D., & Chadwick, C. (2012). Performance, Expectations, and Managerial Dismissal: Evidence From the National Football League . *Journal of Sport Economics*(13, No. 4), 337-363.
[79] Argote, L., & Epple, D. (1990, February 23). Learning Curves in Manufacturing. *Science, 247, No. 4945*, 920-924.
[80] Staw, B. (1980). The Consequences of Turnover. *Journal of Occupational Behavior (Pre-1986), 1 (4)* , 253-273.

that high turnover levels can also cause the above stated disruption in the learning curve within the team.

These managerial changes were not the only ones the team experienced that year. Unhappy with the owners' interference in hockey operations, general manager Jay Feaster decided to resign from his position despite still having three years remaining on his contract. In an interview with the *Canadian Press*, Jay Feaster stated,

> "For the past two weeks I have watched from the sidelines as (vice-president of operations) Brian Lawton (and owners) Len Barrie and Oren Koules executed to perfection the game plan they shared with us prior to the NHL draft in Ottawa…. During that time, it became apparent to me that this new ownership group did not need my advice or expertise, and I came to the conclusion that it was time to move on."[81]

Nevertheless, he never commented directly if the owners' hiring of Barry Melrose as head coach was the main reason for his resignation as general manager. But it is possible that he felt that the owners Oren Koules and Len Barrie did not let him do his job, as hiring and firing head coaches is often part of the responsibilities of a general manager. Indeed, job dissatisfaction may also be a factor in employees leaving their organization, similar to what March and Simon (1958) suggested in their classic text, asserting that employees may have a desire to leave the organization if they experience

[81] TheCanadianPress. (2008, July 11). *Tampa Bay Lightning General Manager Jay Feaster Resigns*. Retrieved April 2020, from The Hockey News: https://thehockeynews.com/news/article/tampa-bay-lightning-general-manager-jay-feaster-resigns

some type of job dissatisfaction and if there is an ease in changing to another organization.[82] Over the summer, the owners had hired Brian Lawton as the Vice President of Hockey Operations for the Lightning while Feaster stayed on as GM until July. Lawton and the owners were the ones making managerial decisions, effectively making Lawton the *de facto* general manager until his appointment to the position became official in October.[83] However, Lawton, a former NHL player and agent, had no previous experience in managing an NHL team; in fact, he had no experience coaching or managing a professional sports team at any level. Nevertheless, he interviewed for management positions with several teams and impressed the new owners with a 46-page proposal for how to improve the team.[84]

When managers of an organization get replaced it is often an indication of change within the department or even the entire organization. Sometimes, the change of a manager leads to a new strategy, causing turnover within a team when individuals who are seen as superfluous or ill-fitting to the new business strategy are replaced. Under Tortorella, TBL has finished the 2007/08 season with 31 wins, 42 losses, 9 overtime losses and a point percentage of 0.433.[85] However, during the following 2008/09 season under head coach Melrose and later Tocchet, the team's performance declined to 24 wins, 40 losses, 18 overtime losses and a point percentage of 0.402. Interestingly, that coincides with Curtis *et al.'s* (1986) suggestion that one season may not be sufficient for

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[82] March, J., & Simon, H. (1958). *Organizations.* Oxford England : Wiley.
[83] Writer, S. (2008, October 22). *Brian Lawton Named Lightning's Executive Vice President & General Manager*. Retrieved March 2020, from NHL: https://www.nhl.com/lightning/news/brian-lawton-named-lightnings-executive-vice-president-general-manager/c-484786
[84] Russo, Michael (1 August 2008). "Agent-turned-exec Lawton hits the ground running". Minneapolis-St. Paul Star Tribune. Retrieved 18 April 2011.
[85] HockeyReference. (2020). *2007-08 Tampa Bay Lightning Team Roster and Statistics*. Retrieved April 2020, from Hockey Reference: https://www.hockey-reference.com/teams/TBL/2008.htm

the incoming coaches or managers to establish their style of leadership within their new team.[86] Regardless, the managerial turnover and the public disputes between the ownership and Melrose seemed to have negatively affected the team's performance. Additionally, the mismanagement also took an additional toll on the team's 2008/09 performance.

## *Mismanagement*

### Bad Player Management

Perhaps Melrose's clearest mismanagement of team assets was his use of Steven Stamkos, the young phenomenon who TBL drafted first overall in the previous year's NHL draft. The Lightning had a franchise star in the making to complement the remaining pieces from the '04 championship team and around whom the future team was likely meant to be molded. Yet, Melrose chose to limit his play by burying him on the fourth line in favor of older players, implying that the eighteen-year-old Stamkos was still too physically weak and small for the NHL. In a radio interview with *The Fan 590*, Melrose said,

> "[Stamkos] is not ready for the NHL. … Steven is going to be a good player ... right now he's just not strong enough physically to play against

[86] Curtis, J. E., Loy, J. W., & Hillen, J. M. (1986). Managerial Succession and Team Effectiveness: A Case Study of Japanese Professional Baseball. *Int. Rev. f. Soc. of Sport21 , 21, No.4*, 339-351.

> defensemen who are [6-foot-3 or 6-foot-4] that can skate as good as him."[87]

This infuriated the owners, particularly Barrie, and created tensions between the owners, management, and the head coach. As the battle between ownership and Melrose continued after he was fired, Lawton stated in an interview that the organization wanted to "move past" Melrose's "classless" statements. Lawton also defended Stamkos saying,

> "I am extremely, extremely, extremely disappointed and upset, and I'm not going to stand for Barry Melrose taking shots at our players. To let an adult attack an 18-year-old hockey player, I think is ludicrous and embarrassing, and it is a shame he would go in that direction. He's a world-class player and only going to get better."[88]

Once Melrose was quickly fired and replaced, Stamkos was promoted to the second line and went on to score 23 goals by the end of that season. The following year he won the Maurice Richard Trophy for most goals scored with 51, an award he would win a second time in the 2011/12 season.[89] Stamkos was the type of player the "New NHL" was looking for, one they could market as an elite talent and a driver of ticket and

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[87] ESPN. (2008, December 11). *Melrose, Bolts still at odds*. Retrieved October 2019, from ESPN: https://www.espn.com/nhl/news/story?id=3762151

[88] Cristodero, D. (2008, December 11). *Barrie Accuses Melrose of 'Total Negligence'*. Retrieved March 2020, from Tampa Bay Times: https://www.tampabay.com/archive/2008/12/11/barrie-accuses-melrose-of-total-negligence/ ; Cristodero, D. (2008, December 10). *Melrose, Lightning Spar*. Retrieved April 2020, from Tampa Bay Times : ESPN. (2008, December 11). Melrose, Bolts still at odds. Retrieved October 2019, from ESPN: https://www.espn.com/nhl/news/story?id=3762151

[89] All NHL Awards can be found in ***Table 1.11 NHL Season Awards;*** ESPN. (2008, December 11). *Melrose, Bolts still at odds*. Retrieved October 2019, from ESPN: https://www.espn.com/nhl/news/story?id=3762151

merchandizing sales. He became one of the faces of the new generation of league superstars, along with Sidney Crosby, Alexander Ovechkin, and Henrik Lundqvist. Melrose, a holdover of the clutch-and-grab physical play of the "dead puck" era, had held him back.

Feaster also made moves that in hindsight could be considered highly questionable. For instance, left-winger Gary Roberts was already 42 years of age when he was acquired by TBL, having played over 20 seasons by that point. The median age at which an NHL player retires is between 30 and 35 years, or an average career of five and half years, depending on a player's position, meaning that Roberts was likely well beyond his prime. A cursory glance at his career statistics also suggests he was in significant decline.[90] While he played 30 games for TBL in the 2008/09 season, he retired shortly after the season's end.

The ownership stated they signed Roberts not due to his performance as a hockey player, but that he brings the team "…leadership, tenacity, grit and experience," that could be used to teach younger players like Stamkos to become better.[91] Stamkos himself stated,

> "To be able to relate to a trainer was huge. …He's has gone through it, has played in the NHL, knows what the body feels like on a day-to-day basis.

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[90] Schwartz, D. (2014, May 17). *When NHL Players Peak: Hockey Metrics*. Retrieved March 2020, from CBC News: https://www.cbc.ca/news/when-nhl-players-peak-hockey-metrics-1.2646054; Sandler, S. (2012, March 18). *NFL, MLB, NHL, MLS & NBA: Which Leagues and Players Make the Most Money?* Retrieved March 2020, from Bleacher Report : https://bleacherreport.com/articles/1109952-nfl-mlb-nhl-mls-nba-which-leagues-and-players-make-the-most-money

[91] Writer, S. (2008, June 30). *Lightning Sign Left Wing Gary Roberts*. Retrieved April 2020, from NHL Lightning News: https://www.nhl.com/lightning/news/lightning-sign-left-wing-gary-roberts/c-484611

> Watching him helped too. There was a 42-year-old guy at the time who was the hardest-working guy on our team. I'm sitting there as an 18-year-old thinking I'm working hard, but I'm watching this guy, who has done everything you can in the NHL -- scored 50 goals, won the Stanley Cup, has nothing to prove -- trying to help a kid like me. It was the best thing for me when he asked me to work out."[92]

While Stamkos was clearly of the opinion that it helped him having Roberts around, there might have been other, slightly younger players that the TBL could have signed for the same leadership purpose while also getting some additional help on the ice and not just the locker room.

A reoccurring theme in the literature is that human and social capital are important factors that can affect organizational productivity. For example, Barreira *et al.* (2019) emphasized that social capital can positively affect a team's performance as the relationships enhance players' commitment and increases flexibility.[93] In short, as players build a relationship with fellow teammates, they feel more responsible to what happens to the team and show an increased commitment.

In contrast, defenseman Lukas Krajicek played 71 games, scoring two goals and 17 assists for a total of 19 points for the 2008/09 season. The team acquired him through a trade with the Vancouver Canucks in early October of 2008, but his career ended after

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[92] Rosen, D. (2012, August 27). *Stamkos gets boost from Gary Roberts' training*. Retrieved April 2020, from NHL: https://www.nhl.com/news/stamkos-gets-boost-from-gary-roberts-training/c-640439

[93] Barreira, J., Sousa, G. C., & Galatti, L. R. (2019). Player Turnover and Team Performance in FIFA Women's World Cup . *The Journal of Physical education , 25, No. 3*, 1-6.

the 2009/10 season with the Philadelphia Flyers. His career ended after the 2009/10 season with the Philadelphia Flyers.[94] Roberts may have been a wise choice in order to help Stamkos develop, but Krajicek seemed to not serve any beneficial purpose for the team.

Many of the players added (41%) over the course of the 2008/09 season, by both Feaster and Lawton, struggled to remain in the NHL, suggesting that these trades were non-beneficial for the team's performance. After losing their top goalie following the 2004 Stanley Cup championship victory, the TBL struggled to find a comparable replacement for years. Furthermore, the goaltending performance during the 2008/09 season also declined. The TBL split the 82 games of the season between five different goalies (Riku Helenius (1GP), Olaf Kolzig (8GP), Mike McKenna (15GP), Karri Ramo (24GP), Mike Smith (41GP)), suggesting that they were struggling to identify who should be their starting goaltender. Smith, part of the blockbuster trade for Brad Richards halfway through the season the year before and the starting goaltender the team had lacked since 2004, was supposed to be their number one goaltender, but he went down with a concussion, prompting the team to experiment with a growing carousel of potential replacements. The team also struggled with finding a skilled offensive defenseman; perhaps Because of this, their specialty teams (Power Play and Penalty Kill) suffered and they dropped below league average.

[94] HockeyReference. (2020). *Lukas Krajicek*. Retrieved January 2020, from Hockey Reference: https://www.hockey-reference.com/players/k/krajilu01.html; NHLTradeTracker. (2020). *Lukas Krajicek*. Retrieved April 2020, from NHL Trade Tracker: http://www.nhltradetracker.com/user/trade_list_by_player/Krajicek,Lukas;

In short, the team had entered the league with no solid understanding of how to use the tools they had, and when it didn't work the team began to fluster and tried to fix the issues on the fly. These moves appeared to have had little design behind them other than simply shooting spitballs at the wall and hoping some stuck.

## Lack of Cohesion

In a team, be it a sports franchise or a company, specific positions have specific roles. For the 2008/09 TBL, those roles became blurred very quickly. Both owners who only had limited to no NHL experience hand-picked a coach who had been out of the game for more than a decade, circumventing the general manager two whose job coach selection would normally fall. This may have caused Jay Feaster to resign as he might have thought that his experience and expertise were no longer needed as the owners had started to take over his general manager roles.

Concurrently, it was Melrose's assertion that during his brief tenure as coach, the players were too friendly with the owners and knew they could circumvent him if they disagreed with him. In his book *Dropping the Gloves* (2012) he wrote:

> "Having players friendly with owners is an unhealthy situation that upsets the chemistry in the dressing room. Maybe you aren't that friendly with the star who is having dinner regularly with the owner. Maybe you start to think he might be throwing you under the bus at those dinners. Tampa Bay

was an impossible scenario for a coach. The players knew it was a screwed-up situation, and I knew it was a screwed-up situation."[95]

The owners, general managers, coaches, scouts, NHL players, and other supporting staff are all part of the team. Or stated differently, an NHL team is more than just a squad of players, but it also includes all of these other roles and departments that are vital for the team. Each of these people has an assigned role in the team, and all have the objective to win the games for the greater good of the organizations as winning games increases the organizations reputation and profits. The players of an NHL team have to interact with each other on the ice in order to achieve the desired outcome, but do so the owners, general managers, coaches, and other supporting staff. For example, if they do not fulfill their job, then the players who do the physical work on the ice during the game won't be getting their essential equipment or medical support that they may need during the game. Another aspect is authority or hierarch, as people within the organizations went beyond their jobs descriptions and essentially circumventing the chain of command within the organization as a whole.

In short, there is not only a great interdependence between players on the ice, but also at the managerial level. Gully, Devine, and Whitney (1995) stated that interdependence focuses on the amount to which team members are required to interact

[95] Stubits, B. (2012, December 26). *Barry Melrose explains what went wrong as Lightning coach*. Retrieved April 2020, from CBS Sports: https://www.cbssports.com/nhl/news/barry-melrose-explains-what-went-wrong-as-lightning-coach/ ; Melrose, B., Vaughan, R., & Bettman, G. (2012). *Dropping the Gloves: Inside the Fiercely Combative World of Professional Hockey.* Fenn-M&S.

and coordinate their efforts in order to effectively achieve a desired goal.[96] Sundstrom, de Meuse, and Futrell (1990) added to this, finding that as greater the need for interaction and coordination to accomplish a task, the greater will be the level of interdependence raising the need for "…collective action of team members" (Gully *et al.* 1995).[97] Davis *et al.'s* (2014) empirical research suggests that the greater the task interdependence within a team is, the more negatively the team's performance will be affected by turnover. While their study focused on the task interdependence among NFL teams, one can arguably see a similar effect in NHL teams in which the lines of each role gets blurred, whether it is in management ranks or among players. For example, scouts as well as the front office are responsible to do research for the GM or the owners to determine who to draft, recruit, and trade.

The high turnover within the 2008/09 TBL team likely caused similar issues due to the task interdependence between players. If you take out 72% of the team and replace it with new players who may have never previously played with each other, then not only will the team experience a lack of coordination at first, as the players have to get to know each other's playing style and adjust themselves to other players of the team, but it will also steepen the overall learning curve of the team.

This coincides with the views of Argot *et al.* (1990) who conducted an empirical study of learning curves in manufacturing. They observed that the production of a

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[96] Gully, S. M., Devine, D. J., & Whitney, D. J. (1995, November ). A Meta-Analysis of the Cohesion and Performance. *Small Group Research , 26, No. 4*, 497-520.

[97] Sunstrom, E., Meuse, K. d., & Futrell, D. (1990). Work teams: application and effectivness. *American Psychologist, 45, No. 2*, 120-133.; Gully, S. M., Devine, D. J., & Whitney, D. J. (1995, November ). A Meta-Analysis of the Cohesion and Performance. *Small Group Research , 26, No. 4*, p.412.

product or service improved as workers gained experience in producing it.[98] A similar phenomenon can be observed in hockey. The practice of regularly playing on the ice with fellow teammates increases their experience and familiarity playing with each other, building a chemistry and trust between players, while new players may need time to learn and adjust to a team's playing style or system. How fast the progress of the learning curve will improve may also vary by organization.

The opposite happens if the team is moving a lot of players back and forth between minor leagues as well as different NHL teams. Each player has to adjust to the new system. When a lot of turnover occurs the team as a whole takes a longer period of time and effort to build chemistry in order to play effectively on the ice. For example, players who have played with each other before or been on the same team for some time may know how to anticipate the play of their teammates which makes them more efficient and effective on the ice each shift while trading away even one will cause the remaining players and the new incoming player to rebuild trust and coordination to achieve the desired outcome of a task. Player chemistry most often isn't formed instantaneously. For instance, aside from Lecavalier and St. Louis, many players of the 2008/09 team roster had rarely, if ever, played together causing a through back on the learning curve as chemistry and trust between players had to be rebuilt. In contrast, players like Crosby, Malkin, Letang, Staal and Gonchar (PIT), Seabrook, Kane, Toews, Keith (CHI) or Green, Semin, Backstrom, and Ovechkin (WSH) had built up years of experience playing together and therefore are further along the learning curve. The

[98] Argote, L., & Epple, D. (1990, February 23). Learning Curves in Manufacturing. *Science, 247, No. 4945*, 920-924.

experience of playing together for several years allows for cohesion while having high turnover rates, like TBL in 2008/09 (72%) makes it harder to build cohesion. This also aligns with the Hazel *et al.* (2008) research, stating that forced ranking within a team-based work setting might not be beneficial for the team's performance as there will be no incentive to help each other even though the performance outcome is highly dependent on the role of each individual within the team. For example, cutting the bottom 10% of the team every season may cause disruption due to the high interdependency within the team (Davis *et al.* 2014).[99] While the lack of cohesion that the team experienced in 2008/09 was probably only one factor that influenced the team's performance, it still is an important factor that has to be considered and may explain the outcome of how turnover and other underlying factors (e.g., lack of cohesion, managerial change, injuries) may have negatively affected the team's performance and presented a variation in the team's win percentage compared other teams.

## Injuries

Captain Vincent Lecavalier had been an instrumental part of the 2004 championship team, but during the 2007 offseason he had surgery to repair a fracture resulting from taking a collision with the Washington Capitals winger Matt Cooke. Towards the end of the 2008/09 season, Lecavalier also underwent wrist surgery. Nevertheless, he played 77 out of 82 games and still managed to finish as the second-

[99] Hazels, B., & Sasse, C. M. (2008). Forced Ranking: A Review (Cover Story). *SAM Advanced Management Journal, 73, no.2* , 35-39., Davis, J. L., Fodor, A., Pfahl, M. E., & Stoner, J. (2014). Team Interdependence and Tunover: Evidence from the NFL. *American Journal of Business , 29, No. 3/4*, 276-292.

highest scoring player on the team with 67 points. While this was a marked decline from the 92 points, he scored the previous season, it was probably indicative of his recent injuries. In the following 2009/10 season, he still played 82 games, but after that his performance significantly declined.

In hindsight, while Lecavalier had exerted a steady influence on the ice for over a decade and helped lead the team to their first Stanley Cup championship, it seems as though the general management missed the opportunity to trade him before his value steeply declined due to his declining numbers, salary, and increasing injuries.[100] Stuart (2017) notes that the centrality of a player like Lecavalier can be disruptive to for a team's performance due to the possibility that these members have relationship-specific knowledge which is necessary for coordinating the interdependent tasks between teammates. In addition, she also explains that just adding a player to the team without reorganizing the lines to find the best "chemistry" to maximize team's performance is not enough to show adaptability.[101] In other words, matching the right players with each other is crucial in order to possibly maximize a team's performance.[102]

As previously mentioned, the team had penciled Mike Smith to carry the bulk of the load in the net as the starting goaltender, but when concussion issues forced him to miss a significant portion of the season the team was left with a rotating cast of substitutes that arguably failed to plug the hole. One of these goalies was Olaf Kolzig

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[100] HockeyReference. (2020). *Vincent Lecavalier*. Retrieved January 2020, from Hockey Reference: https://www.hockey-reference.com/players/l/lecavvi01.html

[101] Stuart, H. C. (2017 , November 13). Structural Disruption, Relation Experimentation, and Performance in Professional Hockey Teams: A networkPerspective on Member Change. *Organization Science , 28 (2)*, 283-300.

[102] Illmakunnas, P., Maliranta, M., & Vainiomäki, J. (2005). Worker Turnover and Productivity Growth . *Applied Economics Letter , 12, no. 7*, 395-398.

who previously had a solid career as a starting goaltender for the Washington Capitals, winning the Vezina trophy for the 1999/00 season and helping the Capitals reach the Cup finals. But a decade later, at the age of 38, Kolzig only managed to play eight games and would retire shortly thereafter. With Smith down, the goaltender position became a major liability the team ultimately could not overcome.

## *Summary*

In summary, the TBL was led by inexperienced men in over their heads. The lack of experience many members had in their respective positions, from coaching, to general managers, to the team owners themselves, likely contributed to their downfall. At every level, they had jumped into positions in which they were under- or unqualified, with minimal preparation, a 46-page report stating why he would be best for the position, and without clearly defined boundaries of their responsibilities. They usurped each other's roles, made their quarrels public, and created an atmosphere of turmoil that likely bled onto the ice and into the locker room. In retrospect, the owners and team management probably made too many changes too quickly and did not give incoming personnel like Barry Melrose enough time to develop a coherent strategy or system. One could argue that the changes by the new owners devalued the franchise; while Koules and Barrie bough TBL for $204 million USD in 2008, they sold it for only for $93 million USD in 2010 to Jeff Vinik who still currently owns the franchise as of May 2020.[103]

[103] Forbes. (2008, October 29). *NHL Team Valuation #17 Tampa Bay Lightning*. Retrieved April 2020, from Forbes: https://www.forbes.com/lists/2008/31/nhl08_Tampa-Bay-Lightning_319451.html ; Forbes. (2010). *NHL Team Valuation #28 Tampa Bay Lightning*. Retrieved April 2020, from Forbes: https://www.forbes.com/lists/2010/31/hockey-valuations-10_Tampa-Bay-Lightning_319451.html

## 2015/16 Season & 2018/19 Season

Whereas the 2008/09 TBL were characterized by comparatively high turnover and low team performance, the 2015/16 and 2018/19 TBL stood out in terms of relatively low turnover – the team retained 81.25% (2015/16) of its roster and made only a single trade during the season – and high team performance, finishing second in the Eastern Conference and reaching the Stanley Cup Finals.[104] In the 2018/19 season, the team recorded a turnover of only 21.43% and an exceptional win percentage of 75.61%, the highest team win percentage of the entire eleven season sample. Similarly, although the 2008/09 season was characterized by inexperience, incompetence, and turbulent change, the 2015/16 and 2018/19 seasons might be characterized in terms of experience, aptitude, and stability.

Unlike Melrose in the 2008/09 season, head coach Jon Cooper managed to stick around for seven seasons. One could argue that Cooper, as had Melrose, inherited a team with several award-winning skilled veteran players. The difference, however, is that over his ten years as a head coach in the AHL and NHL, Cooper received or was a finalist for several awards (e.g., Louis A.R. Pieri Memorial Award (2012), Jack Adams Award finalist (2013/14)) while Melrose received none.[105]

During the 2015/16 season, the TBL experienced only 18.75% player turnover, effectively returning a Stanley Cup Finals team to the ice that included two-time Maurice Richard Trophy winner and team captain Steven Stamkos, future Norris Trophy winner

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[104] HockeyReference. (2020). *2015-16 NHL Summary*. Retrieved March 2020, from Hockey Reference: https://www.hockey-reference.com/leagues/NHL_2016.html

[105] Writer, S. (2014, May 6). *Lightning Head Coach Jon Cooper voted Jack Adams Award finalist*. Retrieved March 2020, from NHL.com : https://www.nhl.com/lightning/news/lightning-head-coach-jon-cooper-voted-jack-adams-award-finalist/c-718119

Victor Hedman, future Art Ross and Hart Trophy winner Nikita Kucherov, and future Vezina and three-time All-Star goaltender Andrei Vasilevskiy. In effect, the franchise retained the core squad of highly skilled players that the front office had decided around which to build a team. During the 2008/09 season, only a handful of players on the TBL team had Stanley Cup Final experience including Vincent Lecavalier, Jason Ward, Marek Malik, Olaf Kolzig, Mark Recchi, and Gary Roberts, whereas in the 2015/16 season, more than twice as many players had Stanley Cup Final experience including Brian Boyle, Matt Carle, Valtteri Filppula, Jason Garrison, Ryan Callahan, Braydon Coburn, Ben Bishop, Anton Stralman, Alek Killorn, J.T. Brown, Victor Hedman, Tyler Johnson, Steven Stamkos, Andrej Sustr, Ondrej Palat, Nikita Nesterov, and Cedric Paquette. The team finished the 2015/16 season second in the Atlantic Division and sixth in the Eastern Conference and therefore made the playoffs.

Following the 2015/16 season, the team tried again to win the Stanley Cup by fielding almost exactly the same team, making only a handful of minor changes to add depth to the team. During the 2016 playoffs, TBL won the first round 4-1 against the Detroit Red Wings, won the second round against the New York Islanders in five games, but ultimately lost against the Pittsburgh Penguins in the final round. While this might initially be viewed as a failure, it is worth noting pointing out that the 2015/16 Pittsburgh Penguins had an enviable collection of elites, superstar franchise players like Sidney Crosby, Evgeni Malkin, Phil Kessel, Kris Letang, and Marc-Andre Fleury. Forwards Crosby and Malkin were both award winning all-stars who regularly sat atop of the scoring charts, had enough NHL player awards between them to fill a trophy cabinet, and

are considered near-certain future Hall of Famers, while at the time Letang, Kessel, and goaltender Fleury shared seven all-star nominations between them and would subsequently go on to earn more than half dozen more. (**see Table 1.12**). In other words, the team may have lost, but one has to consider the fact that their opponent was an incredibly talented team that had won back-to-back Stanley Cups (2016/16, 2016/17), a feat that has only been accomplished 16 times in the last century.[106] In short, the TBL ran into a team of all-stars and unique, once-in-a-lifetime franchise players, much like one might argue happened to the Islanders, Bruins, Flyers and Flames who lost to the Edmonton Oilers' dynasty team of the 1980s that included Hall of Famers Gretzky, Kurri, Coffey, and Messier.

Similar to the 2008/09 season, however, the TBL also suffered from significant player injuries. For example, goalie Andrei Vasilevskiy was unable to play from September until November due to a blood clot, while left-wing Ondrej Palat suffered from an ankle injury in early November and missed five weeks of games before he was able to play again.[107] Yet, the TBL performed vastly better in the 2015/16 and 2018/19 seasons than they did in the 2008/09 season. While one can only speculate as to the reasons, it is possible that the combination of lower player turnover, consistent and competent management, and coherent decision-making and planning contributed to the success of the 2015/16 and 2018/19 seasons. Below, I describe how the general manager

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[106] Silverman, S. (2013, September 18). *Ranking the Greatest Repeat Stanley Cup Champions in NHL History*. Retrieved April 2020, from Bleacher Report: https://bleacherreport.com/articles/1778789-ranking-the-greatest-repeat-stanley-cup-champions-in-nhl-history

[107] Schram, C. (2015, November 9). *NHL Teams Most Impacted by Injuries in the 2015-16 Season*. Retrieved October 2019, from Bleach report: https://bleacherreport.com/articles/2587428-nhl-teams-most-impacted-by-injuries-in-the-2015-16-season#slide4; NHLInjuryViz. (2015, November 6). *NHL Injury Viz 2009/10 to 2019/20*. Retrieved November 2019, from NHL Injury Viz: https://nhlinjuryviz.blogspot.com/2015/11/nhl-injury-database.html?m=1

and head coach quickly rebuilt the TBL into a more competitive franchise that tied the record for team wins in a single season.

## *Consistent Management*

The owner of the TBL hired hockey Hall of Famer Steve Yzerman as their new general manager in 2010 and he stayed with the team until September 2018. While both Brian Lawton and Yzerman (1983 to 2006) where NHL hockey players, Yzerman had far more front office experience than Lawton.[108] Having won three Stanley Cups (1997, 1998, 2002) and received several awards, and being a professional NHL player for 22 years, he was appointed to become the Detroit Red Wings team vice-president.[109] Having gained managerial experience for several years with the Detroit Red Wings and as general manager for team Canada (2007), he had far more experience than interim GM Brain Lawton who had filled in for Jay Feaster for a few months before he resigned in July 2008. Additionally, Yzerman was a willing student and protégé of Holland, whereas Lawton seemed to largely ignore Feaster.

One of Yzerman's first decisions as GM was to hire Guy Boucher as the new head coach for the team. Boucher stayed with the team until 2013, when he was replaced by Jon Cooper.[110] Just one year after Yzerman was hired as GM for TBL, the team went

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[108] HockeyReference. (2020). *Steve Yzerman*. Retrieved March 2020, from Hockey Reference: https://www.hockey-reference.com/players/y/yzermst01.html

[109] Steve Yzerman received several awards during his career as an NHL player, including Ted Linsey Award 1988/89, Conn Smythe Trophy 1997/98, Frank J. Selke Trophy 1999/00, Bill Masterton Memorial Trophy 2002/03, HockeyReference. (2020). *Steve Yzerman*. Retrieved March 2020, from Hockey Reference: https://www.hockey-reference.com/players/y/yzermst01.html; Beam, T. (2019, April 2019). *Red Wings name Steve Yzerman Executive Vice President and General Manager*. Retrieved March 2020, from NHL.com: https://www.nhl.com/redwings/news/steve-yzerman-named-executive-vice-president-and-general-manager/c-306895892; Kreiser, J. (2019, April 19). *Yzerman timeline: from Red Wings legend to general manager*. Retrieved March 2020, from NHL.com : https://www.nhl.com/news/steve-yzerman-nhl-career-timeline/c-306894276

[110] NHL.com. (2020). *Tampa Bay Lightning - Jon Cooper*. Retrieved March 2020, from NHL.com: https://www.nhl.com/lightning/team/hockey-staff/jon-cooper; Burse, M. (2010, June 8). *Tampa Bay Lightning GM Steve Yzerman*

from missing the playoffs for three consecutive years (2008, 2009, 2010) to finishing fifth overall in the Eastern Conference Finals.[111] Even though the team did not qualify for the Stanley Cup playoffs in 2012 and 2013, the team made it to the Stanley Cup Finals in two consecutive years following the 2012/13 season. While the 2012/13 season was Jon Coopers' first season as NHL head coach, he had gained his coaching experience in junior and minor leagues winning not only several cups, but also coaching awards. He started his coaching career as assistant coach for the Capital Centre Pride in the North American Hockey League (NAHL) in 2000. Becoming the following year, the head coach for the Texarkana Bandits and making into the championship, but losing in the first round. During his coaching career in the NAHL, he won two championships with the St. Louis Bandits in 2006/07 and 2007/08 Before moving to the United States Hockey League (USHL) for two years where he won a cup with the Green Bay Gamblers. He subsequently moved up the head coaching ladder serving as a head coach for the Norfolk Admirals, and the Syracuse Crunch in the American Hockey League (AHL), winning yet another league championship before finally making the NHL as head coach for Tampa Bay Lightning.[112] Since he was hired in 2013, Cooper was able to get the team into the playoffs five times and carry the team to its 50th win and 108-point franchise record in 2014/15 season along with GM Yzerman.[113] In short, Cooper not only had vastly more

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*Signs Guy Boucher as Head Coach*. Retrieved April 2020, from Bleacher Report: https://bleacherreport.com/articles/402881-tampa-bay-gm-steve-yzerman-signs-guy-boucher-as-head-coach

[111] RecordsNHL.com. (2020). *Tampa Bay Lightning Season-to-Season Record*. Retrieved March 2020, from Records NHL.com:https://records.nhl.com/franchises/tampa-bay-lightning/year-by-year-record

[112] HockeyDB. (2020). *Jon Cooper*. Retrieved March 2020, from Hockey DB: https://www.hockeydb.com/ihdb/stats/pdisplay.php?pid=120858

[113] HockeyReference. (2020). *2014-15 Tampa Bay Lightning Roster and Statistics*. Retrieved March 2020, from Hockey Reference: https://www.hockey-reference.com/teams/TBL/2015.htm

coaching experience and success than Melrose or Tocchet but also established a significantly better record as head coach in the NHL.[114]

In 2015, Yzerman was awarded the NHL General Manager of the Year Award, becoming the first Tampa Bay Lightning GM to receive the honors. Players like Steve Stamkos (C), Martin St. Louis (RW) and Vincent Lecavalier (C) were added to the team prior to Yzerman's general manager term, but he built a team around them with several All-Star and award-winning players such as Ryan McDonagh (D), Nikita Kucherov (RW), and Brayden Point (C), set the franchise record with 50 wins and 108 finishing points during the regular season and also led the league with 259 goals and 32 home wins.[115] The only trade he did in the 2015/16 was trading goalie Kevin Poulin in November 2015 to the Calgary Flames in exchange for future considerations.[116] Poulin was a minor league goalie and had never played for the NHL team. The team reached the playoffs after the season, but lost in the conference finals against the Pittsburgh Penguins.

In summary, while the franchise did experience some turnover at the head coach position, the coaches themselves were demonstrably more experienced and successful than the coaches employed by the previous owners. Moreover, there was stability in the front office as Yzerman carefully drafted young talent and traded to acquire skilled players with Cup finals experience in order to provide a balanced team of skill and experience with depth. Perhaps there is a lesson in comparing these two TBL organizations: hire coaches and general managers with a proven track record of relevant

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[114] NHL.com. (2020). *Tampa Bay Lightning - Jon Cooper*. Retrieved March 2020, from NHL.com: https://www.nhl.com/lightning/team/hockey-staff/jon-cooper
[115] Ibid.
[116] NHLTradeTracker. (2020). *Kevin Poulin*. Retrieved February 2020, from NHL Trade Tracker: http://www.nhltradetracker.com/user/trade_list_by_season_team/Tampa_Bay_Lightning/2015-16/1

previous experience and give them the time and stability to implement their strategy. Organizations may also want to consider how knowledge transfer may be acquired or lost as employees are hired, promoted, or fired; Yzerman benefitted from his time serving under Red Wings GM Ken Holland and fired Boucher near the end rather than the beginning of the season, giving his replacement more time to become acquainted with the franchise management and operations.

## *Coherent Management Decisions and Planning*

Whereas the 2008/09 TBL season could be summed up in terms such as "turbulent" or "erratic," the Yzerman era was a period of confidence and resoluteness. Yzerman reshaped the franchise by making trades and drafting well, and recognized that holding on to declining all-stars, regardless of their history with the team or Stanley Cup championship rings on their finger, was not a prudent long-term strategy, opting instead to build a new team around a core of highly-touted draft picks in the form of Stamkos, Hedman, Namestnikov, and Brett Connolly.

The first major shakeup was buying out former all-star and captain Vincent Lecavalier when he was only thirty-three years old with seven years remaining on his contract at $7.5 million per year. They were on the hook for two thirds of his salary for twice the amount of years (14) including an $8 million-dollar bonus. The buyout cost the Lightning an incredible sum, but this cost removed his salary from the cap, allowing Yzerman to begin rebuilding the team at a faster pace.[117]

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[117] LeBrun, P. (2013, June 27). *Vincent Lecavalier to be bought out*. Retrieved April 2020, from ESPN: https://www.espn.com/nhl/story/_/id/9428038/tampa-bay-lightning-buy-vincent-lecavalier-deal

Similarly, he next shipped six time NHL All-Star and alternate team captain Martin St. Louis to the New York Rangers in exchange for their team captain Ryan Callahan, a gritty defensively solid forward who had recently played for the silver medal-winning Us men's hockey, clearing St. Louis's annual $5 million off the books.[118]

With the cap space Yzerman had cleared, the Lightning signed Stamkos to an eight-year contract, paying him an average salary of $8.5 million. Meanwhile, the TBL pulled off a series of draft day home runs. Brett Connelly and Radko Gudas were taken in 2010, Yzerman's first draft as GM; while perhaps not top-caliber players, they became serviceable players as both would go on to play more than 450 games by 2020. The next year, Yzerman draft three more successful NHL players, drafting Vlad Namestnikov in the first round, Nikita Kucherov in the second, and Ondrej Palat in the seventh round. Kucherov would win three individual awards in a single season (Hart for MVP of the league, Art Ross for the scoring leader of the league and Ted Lindsey for best player as voted by the players.), while Palat scored 59 points in his rookie season and today remains a mainstay on the TBL roster. The following year, Yzerman drafted Andrei Vasilevskiy to be their future goaltender; just a few years later at the age of 24, Vasilevskiy won the Vezina for best goaltender. The following year, the TBL unearthed a hidden gem in the form of center Brayden Point in the third round of the draft; Point would go on to score over 30 goals in just his second season and finished the 2018/19 season with a heady 92 points.

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[118] Slawson, D. (2015, July 15). *Revisting the Callahan - St.Louis Trade*. Retrieved April 2020, from Hockey Writers: https://thehockeywriters.com/revisiting-the-callahan-st-louis-trade/

Yzerman also filled the TBL's coffers with talent outside the draft by trading to acquire skilled and experienced players. He brought in an undrafted and unsigned free agent Tyler Johnson, who was viewed as too small by other NHL executives, and inked him to a contract; Johnson went on to become a four-time 20 goal scorer with a career high 72 points in 2014/15.[119]

Yzerman used his scouting to obtain multiple blue-chip prospects through the draft to either play on the team or be used as trade assets. He was willing to move high ceiling, but raw talent such as Tony DeAngelo being shipped to Arizona for a draft pick who would become Libor Hajek. Hajek himself was the cornerstone of the trade that moved him and another Yzerman draft choice, Brett Howden, to the New York Rangers for their captain, All-Star and Olympian Ryan McDonough and forward JT Miller. This, by the way, was the second captain in a row that Yzerman had acquired from the Rangers; Yzerman had also already signed former Ranger defensemen Dan Girardi and Anton Stralman, leading to the nickname of the TBL as the "Rangers South."[120] By that point, Yzerman had acquired four former players that had been part of the NYR's run trip to the Stanley Cup finals in the spring of 2014, assembling a cadre of veteran leadership to compliment young franchise stars Stamkos, Kucherov, Vasilevskiy and Hedman. This was a balanced roster of experience, skill, leadership, and youth and the core players were locked up for the foreseeable future with long term contracts. It was, on paper, a powerhouse team

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[119] HockeyDB. (2020). *Tyler Johnson*. Retrieved April 2020, from Hockey DB: https://www.hockeydb.com/ihdb/stats/pdisplay.php?pid=107053

[120] Wyshynski, G. (2018, April 3). *Inside the Lightning's 'Rangers South' strategy: Wil it pay off?* Retrieved April 2020, from ESPN: https://www.espn.com/nhl/story/_/id/23002023/nhl-tampa-bay-lightning-traded-signed-many-new-york-rangers-quest-stanley-cup

## *Managerial Turnover*

Comparing the 2018/19 season with the 2015/16 season, showing the similar characteristics of experiences and stability allowing the team to successfully make it to the playoffs. However, the team's GM Steve Yzerman left the team in September of 2018, leaving the team with a good set of players to potentially win the Stanley Cup in 2019, assuming that the team used the talent and skills of the NHL players to their advantage.[121] Yzerman was not fired, but wanted to fulfill his dream of eventually becoming the new general manager of his home team the Detroit Red Wings. As a result of Yzerman's leaving, assistant general manager Julien BrisBrois was promoted to become the new general manager of the team.[122] Even though Yzerman had met the owner's expectation, his desire to pursue his dream was stronger. As to opposed, to seeing a change as a new general is being appointed, the team kept its strategy. Since Yzerman was not fired due to a poor team performance, the new general manager may have no reason to make drastic changes.[123]

Prior to leaving, Yzerman made tweaks to the team to add complimentary players to Tampa Bay Lightning, setting the team up to have the ability to potentially win the playoffs in the end of the season. Yzerman built the core team to supplement 2008, first overall pick Steve Stamkos (C), such as 2009 second overall pick Victor Hedman (D),

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[121] Khurshudyan, I. (2018, September 11). *Steve Yzerman to step down as Tampa Bay Lightning general manager*. Retrieved February 2020, from The Washington Post: https://www.washingtonpost.com/news/early-lead/wp/2018/09/11/steve-yzerman-to-step-down-as-tampa-bay-lightning-general-manager/

[122] Jackson, L. (2018, September 11). *Lightning general manager Yzerman steps down*. Retrieved April 2020, from Reuters: https://www.reuters.com/article/us-icehockey-nhl-tbl-yzerman/lightning-general-manager-yzerman-steps-down-idUSKCN1LR2B7

[123] Curtis, J. E., Loy, J. W., & Hillen, J. M. (1986). Managerial Succession and Team Effectiveness: A Case Study of Japanese Professional Baseball. *Int. Rev. f. Soc. of Sport21 , 21, No.4*, 339-351; Allen, W. D., & Chadwick, C. (2012). Performance, Expectations, and Managerial Dismissal: Evidence From the National Football League . *Journal of Sport Economics*(13, No. 4), 337-363.

2011 second round pick Nikita Kucherov (RW), and 2012, 19th overall pick goaltender Andrej Vasilevskiy. Each of the players have been awarded with trophies that are given to players for different achievements. For example, the Maurice Richard Trophy is given to the annual leading goal scorer in the NHL.[124] Each of these different trophies are indicators for the outstanding talent and skill some of the NHL player have, allowing some differentiating between the different players. Besides, having added talented players through the NHL Draft, Yzerman had also acquired supporting players including forward J.T. Miller, Ryan Callahan, Tyler Johnson, and defender Ryan McDonagh who had all except for Johnson previously played together for the New York Rangers.[125] Callahan was not only a former New York Ranger (NYR) captain, but also had experience through playing on the U.S. Olympic team. Similarly, McDonagh was also a former NYR captain that added even more leadership as well as Stanly Cup Final experience to the TBL team. In addition, TBL also added several supporting players to their roster through trades or NHL drafts that stayed largely intact including players like Alex Killorn, Braydon Coburn, Ondrej Palat, Brayden Point, Cedric Paguette and Tyler Johnson. Overall, general manager Yzerman had familiarity if not chemistry with the NHL players of the TBL team. The team's key players were to a majority either drafted by the team, had played for several years with the same team (e.g. Callahan, McDonagh and Miller with

[124] Steve Stamkos: six-time All-Star player, two-time Maurice Richard Trophy winner; Victor Hedman https://www.hockey-reference.com: three time All-Star, and Norris Trophy winner, Nikita Kucherov: one-time Art Ross Trophy, Ted Lindsay winner and Hart Trophy winner (2018/19), https://www.hockey-reference.com

[125] NHLTradeTracker. (2020). *Tampa Bay Lightning Trades 2017/18*. Retrieved February 2020, from NHL Trade Tracker: http://www.nhltradetracker.com/user/trade_list_by_season_team/Tampa_Bay_Lightning/2017-18/1

the NYR) or had been acquired and remained with the team for five or more years (e.g. Coburn, Johnson).

Since BrisBrois had served under Yzerman and worked with him, having a change in management ranks did not seem to have any negative impact on the team's hockey operations. BrisBrois was already familiar with the team and all other internal process, which allowed him to directly fill the position without needing to learn much about the franchise, its cultures and the players. The transition was seamless. BrisBrois and Yzerman's working together allowed for a direct knowledge transfer that BrisBrois was able to use to his advantage. BrisBrois could implemented a completely new and different strategy as Yzerman left but there was no need for that as the team continued to win games.[126] However, Curtis *et al.* (1986) argues hiring someone externally for the position may be a better fit than promoting someone within the organization since they later may lead to problems with fellow peers might not taking the new general manager as seriously due to their social connections that were established prior to the promotion.[127]

## *Outcoached / Overconfident*

The team's season was far beyond the league average of 41 wins, 32 losses, nine overtime games, 91 points and a point percentage of 0.553. The team became the second team in league history to win 62 games, matching the record of the Detroit Red Wings in

[126] Trequattrini, R., Massaro, M., Lardo, A., & Cuozzo, B. (2019). Knowledge transfer and manager turnover: impact on team performance. *Business Process Management Journal, 25, No. 1*, 69-83.
[127] Curtis, J. E., Loy, J. W., & Hillen, J. M. (1986). Managerial Succession and Team Effectiveness: A Case Study of Japanese Professional Baseball. *Int. Rev. f. Soc. of Sport21 , 21, No.4*, 339-351.

the 1995/96 season. They finishing first in the NHL Atlantic Division with only 16 lost games, four overtime games, a total of 128 points and an overall point percentage of 0.780 that lies 0.227 above the league average point percentage.[128] The Lightning finished the 2018/19 regular season winning the President's Trophy for best record in the league. They were the odds-on favorite to win the cup that year, but they hit a roadblock in the Columbus Blue Jackets (CBJ), coached none other than John Tortorella, who was the only coach to lead Tampa Bay to a cup in their history. This was the eighth seeded team in the east, and on paper should have been an easy hurdle, or so the Lightning thought. The confidence they had gained from their historic regular season was also their downfall. Tortorella had been a successful coach since his departure from the Lightning, bringing the New York Rangers to the Eastern Conference finals in the 2011/12 season and winning the Jack Adams award for Coach of the Year in 2018 with the Blue Jackets. In the first game of that series the Lightning were up by a score of 3-0 after the first period when the Blue Jackets found the back of the net in the second period and then followed that with three unanswered goals in the third period for the win. From that point on the Blue Jackets dominated, winning the next three games by outscoring the Lightning fifteen to five. The Blue Jackets stars shined bright, with Artemi Panarin scoring five points and Matt Duschane scoring seven in just four games. The Blue Jacket's goalie, Sergei Bobrovsky had a save percentage of 0.932, when Vasilevskiy posted an abysmal 0.856. Stamkos and Kucherov combined for only four points and had a combined plus/minus (goal differential when on the ice) of -12. It was an epic collapse of a

[128] HockeyReference. (2020). *2018-19 Tampa Bay Lightning Roster and Statistics*. Retrieved March 2020, from Hockey Reference : https://www.hockey-reference.com/teams/TBL/2019.htm

powerhouse team that blew a lead and had no answers. Jon Cooper could not rally his team following Columbus' come from behind victory in game one, especially in the final deciding game where they were defeated by a final score of 7-3. With all that depth and leadership on the team they could not overcome the unpredicted blow to their confidence, and when the goalie faltered there was no one else ready to fill in.[129]

Regardless of having a good season, they were upset in the first round of the playoffs by the Columbus Blue Jackets. As CBS's Pete Blackwood put it "One of the most dominant teams of the modern era was swept -- and swept pretty handily -- by a franchise that had never previously won a playoff series in its nearly 20-year existence."[130]

## *Summary*

In summary, the 2015/16 and 2018/19 seasons of the TBL were far less turbulent than the 2008/09 season and were characterized by competent and experienced personnel in team management and the head coach position. Rather than simply making a flurry of trades to shakeup a familiar yet increasingly moribund roster, Yzerman instead opted to carefully add a cadre of experienced midcareer players around a core of highly talented draft picks that had already showed signs of promise playing at the NHL level, realizing that rebuilding the franchise was not going to happen overnight. [131] However, unlike his former mentor Ken Holland, who some might argue waited too long to begin the process

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[129] HockeyReference. (2020). *2019 NHL Eastern First Round: CBJ vs. TBL*. Retrieved April 2020, from Hockey Reference : https://www.hockey-reference.com/playoffs/2019-columbus-blue-jackets-vs-tampa-bay-lightning-eastern-first-round.html

[130] Blackburn, P. (2019, April 19). *2019 NHL Playoffs: Five Reasons the Tampa Bay Lightning were swept by the Columbus Blue Jackets*. Retrieved March 2020, from CBS Sports: https://www.cbssports.com/nhl/news/2019-nhl-playoffs-five-reasons-the-tampa-bay-lightning-were-swept-by-the-columbus-blue-jackets/

[131] Staw, B. (1980). The Consequences of Turnover. *Journal of Occupational Behavior (Pre-1986), 1 (4)* , 253-273; Audas, R., Dobson, S., & Goddard, J. (2002). The Impact of Managerial Change on Team Performance in Professional Sports . *Journal of Economics and Business, 54*, 633-650.

of rebuilding the Red Wings, Yzerman did not hesitate in removing two popular players past their prime in order to clear up salary cap space and accelerate the rebuilding process. The combination of experience, patience, and low turnover allowed Yzerman to gradually acquire of the right mix of skilled prospects and veteran players with Stanley Cup finals experience. On paper, the depth of skill and balance of youth with experience suggested the TBL were all but certain to make it to at least the Conference Finals if not the Stanley Cup Finals, but they ran into a red-hot goaltender in the first round in CBJ's Sergei Bobrovsky, while others chalked their first round playoff elimination up to overconfidence from their regular season record or the curse of the Presidents' trophy.[132] Steve Yzerman set up the team for better conditions to win more games. But in the playoffs of 2019 the team lost his clear head and the team's playoff strategy was outplayed by the CBJ.

## Detroit Red Wings

The Detroit Red Wings (DET) were selected for case study analysis since the team had two seasons in which they had comparatively low player turnover and a high win percentage. During the 2008/09 season, the team had a turnover of 13.79% and corresponding win percentage of 62.20%, while in 2014/15, the team had a turnover rate of 12.50% and a win percentage of 52.44%. The Red Wings have also the same general manager for almost 20 years, which is highly unusual in the hockey industry. In the

[132] Weiss, J. (2010, April 4). *The Curse of the Presidents' Trophy: Fasct or Fiction?* Retrieved April 2020, from tps://bleacherreport.com/articles/373490-the-curse-of-the-presidents-trophy-fact-or-fiction: Bleacher Report

following paragraphs, I will explain how having consistent management has helped the Detroit Red Wings. However, management's inability to adapt and failure to pre-plan for injuries also created several hurdles for the team during their 2008/09 and 2015/16 seasons. In retrospect, while Holland's strategy of retaining the team worked in the short-run, in the long-run he missed planning for the future, and eventually players aged and retired, resulting in the team's serious dip in performance during the current 2019/20 season.

## 2008/09 Season & 2014/15 Season

Case study analysis of the 2008/09 DET suggests that regardless of facing a bit of struggle in finding the right replacement for their number one future Hall of Famer goaltender Dominik Hasek, the team compensated with increased offensive output compared to the previous 2007/08 season. The teams point percentage of 0.683 increased to 0.701 in the 2008/09 season, finishing the season above the league average of 0.555-point percentage. Comparing the Red Wings' 2008/09 season with the 2014/15 season, it stands out that keeping a Cup-winning team together might be a recipe to success; however, keeping a team together for this long also has an expiration date which seems to be the 2014/15 season. Hockey players aged, injuries took their toll, and opportunities to cash in on one last contract made the proverbial grass look greener on other teams. Taking a closer look at the team, in the 2014/15 season Mike Babcock was still the head coach of the team but it was his last season before bolting to the Toronto Maple Leafs for a major contract. The team had suffered several major player injuries in the 2013/14 season resulting in a total of 421-man games lost. Nevertheless, the team still managed to

finish in third place of the Atlantic Division, they qualified for the playoffs but lost in the first round against the Tampa Bay Lightning. However, the Red Wings did not lose due to poor team performances but like the 2018/19 TBL faced a team with highly skilled players. Their opponent, the Tampa Bay Lightning, entered the final round of the playoffs against the Chicago Blackhawks and lost game six. Below, I describe the slight changes the team made during this period, the effect they had on the team's performance, and how why perhaps lower player turnover appears to be associated with better team performance.

### *Consistent & Coherent Management*

Compared to the other teams included in this study (e.g., Edmonton Oilers, Buffalo Sabres), the Detroit Red Wings had a general manager for several decades and long tenured coaching. This longevity allowed them the opportunity to implement their strategies and get the team on the right track. General manager Ken Holland was hired in 1997 and stayed until 2018 before he suggested that the franchise should bring in a new general manager to give the team a new perspective and push for the future. Scotty Bowman, who coached the Red Wings for nine years and won two Stanley Cups, was still around when the general management finally changed. His presence facilitated a smooth general manager transition and allowed the knowledge transfer between general managers to be a lot easier. Bowman was able to give the general manager direct insights about each of the players as he has worked with some of them for several years.[133] As

[133] WireReporters. (1997, July 19). *Red Wings Sign Sotty Bowman to Coach for Two More Years*. Retrieved April 2020, from Los Angeles Times : https://www.latimes.com/archives/la-xpm-1997-jul-19-sp-14226-story.html

Trequattrini *et al.* (2019) point out, it is hard to analyze a manager's capabilities due to its inherent intangibleness and subjectivism, but their knowledge may help to build a competitive advantage compared to other teams.[134] By 2008/09, Ken Holland had been managing the team for over a decade. Holland hired head coach Mike Babcock in 2005 and he stayed with the team for another decade until 2015.[135]

During this period, the team developed a clear strategy on how to bring the team not only to the playoffs but win the cup. In fact, the Detroit Red Wings had qualified for the playoffs for 25 consecutive years, but because of this prolonged success the team was forced to dig a lot deeper for potential talents in the NHL drafts since they continuously had lower first round draft picks. The team's last first overall pick dates back to 1986, and team did not qualify for a top ten pick from 1992 until 2017. Nevertheless, between 2000 and 2010 the team still managed to find serviceable if not gifted NHL players in rounds two or later that ended up playing at least 500 NHL games. For example, Pavel Datsyuk was drafted in 1998 in the seventh round as the 198$^{th}$ player overall. During his career, in which he was a 4-time All-Star and received three Selke trophies, he played almost 1,000 games and scored nearly 1,000 points, all for the Detroit Red Wings before he retired. Henrik Zetterberg, who was drafted in 1999, was also selected in the seventh round with the 210$^{th}$ overall pick, yet went on to play over 1,000 games in the NHL, scoring 960 points and receiving the Conn Smythe Trophy for most valuable player

[134] Trequattrini, R., Massaro, M., Lardo, A., & Cuozzo, B. (2019). Knowledge transfer and manager turnover: impact on team performance. *Business Process Management Journal, 25, No. 1*, 69-83.

[135] Mike Babcock, who has been the head coach since 2005 for the Red Wings has taken the core group of players as far as he could over his tenure. The team has been again with an age average of 28.9 lying above the league average of 28.2. Looking back at Mike Babcock, currently his coaching style has been questioned and previous Detroit Players have been speaking out against him.

during the 2008 Stanley Cup playoffs.[136] In the 2002 draft, the team drafted Valtteri Filppula in the third round with the 95th overall pick; he, too, also went on to play over 1,000 games in the NHL and was a useful depth player, contributing an average 40 points per season while often playing on the second or third line. In short, despite the handicap of not having top draft picks for a long stretch of years, Holland was able to successfully draft and retain skilled players that other teams passed over or overlooked, avoiding requiring a major rebuild and the exodus of key players

In the previous season (2007/08), the team won the Stanley Cup against the Pittsburgh Penguins, and therefore Holland and head coach Mike Babcock saw no need to make several adjustments to the team's roster following 2008/09 season. In retrospect, not seeing the need to make adjustments due to the success of the team also caused a blindness in the management ranks, causing them to miss the moment when to slowly adjust the team as the 2008/09 team started to age, and the possibility that older players may be more likely to get hurt down the road increased. That aligns with the Dess *et al.'s* (2001) theory which emphasizes that once an organization makes the decision of hiring an employee and therefore invests money, the organization will be automatically become incentivized to maintain the employment relationship regardless of whether the employee was hired for his/her skills.[137] Somewhat analogous to the concept of "sunk costs", Holland may become overinvested in players he and his staff drafted and developed. The team roster of DET seemed to be working well, but on the other hand Holland was also

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[136] HockeyDB. (2020). *Detroit Red Wings Draft History*. Retrieved April 2020, from Hockey DB: https://www.hockeydb.com/ihdb/draft/teams/dr00005492.html

[137] Dess, G. G., & Shaw, J. D. (2001). Voluntary Turnover, Social Capital, and Organizational Performance. *The Academy of Management Review, 26, no. 3*, 446-456.

blinded by the success the team had with the human capital they had at the time. In retrospect, DET showed a drastic decline in the current 2019/20 season as they experienced a similar situation to what TBL had been through in 2008/09. The departure of several players (i.e., high turnover) caused a lot of operational disruptions. This is similar to Staw's (1980) suggestion that the departure of employees may affect the ability of others to maintain productivity due to an interdependence of work roles within the organization.[138] Each player on the Red Wings had a specific role to fulfill in order for the team to achieve the desired goal of winning the Cup, but due to the high turnover the team now has to rebuild in order to reestablish coordination between players and previous successful performance levels (Wittenbaum *et al*. 1998).[139]

### *Individual Players vs. Team*

The Detroit Red Wings acquired several players that stood out from the team's roster that have had a great contribution to the team's success. For example, Pavel Datsyuk was drafted by the team in 1998 in the sixth round and is considered one of the biggest 'sleeper" picks in draft history. Over the years he has not only won the Stanley Cup twice but also won the Lady Byng Trophy four times in a row (2005/06, 2006/07, 2007/08, 2008/09), as well as winning the trophy for best defensive forward, the Frank J. Selke Trophy three times in a row (2007/08, 2008/09, 2009/10) and was honored in the 2008/09 All Star Team. In retrospect, in his 14 years with the Detroit Red Wings, he had

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[138] Staw, B. (1980). The Consequences of Turnover. *Journal of Occupational Behavior (Pre-1986), 1 (4)* , 253-273.
[139] Wittenbaum, G., Vaughan, S., & Strasser, G. (1998). Chapter 9: Coordination in Task-Performing Groups. In R. Tindale, L. Health, J. Edwards, E. Posavac, F. Bryant, Y. Suarez-Balcazar, . . . J. Myers, *Theory and Research on Small Groups* (pp. 515-558). New York, NY, USA: Plenum Press.

in four consecutive seasons above 85 points. In the 2007/08 season, he led the NHL league with having +/- 41 points and overall finishing the season with 97 point overall.[140] Datsyuk also replaced the retired and previous team captain Nicklas Lidstrom. In the 2008/09 season, Lidstrom was still the team captain and was an eleven time All-star, four-time Cup champion and won the Norris Trophy for Best defensemen in the league seven times. Lidstrom himself had replaced Hall of Famer, nine time All-Star, and multiple individual trophy winner Steve Yzerman as team captain. In effect, the Red Wings had a lineage of three elite, "all world players" to serve as the captain of the franchise consecutively. Marian Hossa previously played in 2007/08 with the penguins, played the 2008/09 season with DET before being traded away as the team had to decide on who they would keep and who they would trade due to salary cap issues. In retrospect, Hossa, who ended up winning three Stanley Cups, scoring over 500 goals and 1,000 points in his career, can be viewed as an example of turnover taking a positive impact on a team's performance. When Detroit added Hossa to its team roster, he had already nine and half seasons of NHL experience. He showed that he was a highly skilled player not by only by playing 78 or more games per season but also through scoring goals and gaining several points. While I do know that one player alone may not be the only reason for a team's improvement, Hossa may have positively contributed with his experience and skills leading to an improved team dynamic between the players that may have harmonized better. As explained earlier, it is important to match the right players with each other as well as the coach to create a good, reliable, trustworthy relationship so that

[140] HockeyReference. (2020). *Pavel Datsyuk*. Retrieved April 2020, from Hockey Reference: https://www.hockey-reference.com/players/d/datsypa01.html

scoring attempts and strategies work more smoothly (Illmakunnas *et al.* 2005).[141] Hausknecht and Holwerda (2013), adding that new incoming human capital adds value to an organization as incoming employees may bring in experience, and different skills that can benefit the organization as whole.[142] Contrary, Batt (2002) states that the loss of human capital will deplete the collective level of knowledge and experience within the team.[143]

## *Mismanagement*

### Lack of Foresight

While Ken Holland saw no reasons to adjust the team after their Stanley Cup win, down the road that "no-change" strategy would ultimately cause trouble. In retrospect, the management may have been blinded by their continued success to the point that they lost the forethought to adapt. The management failed to anticipate looking for talent that could replace ageing core players in the future as the players from the current Detroit team roster started to age out, decline in performance, gain a higher risk of sustaining injuries or simply retire. Both the 2008/09 and 2014/15 rosters showed the same pattern of consistency and lack of foresight by the general management. For example, the number one goaltender Dominik Hasek retired after the 2007/08 season, leaving a giant hole in net. Hasek received numerous awards throughout his career including the Vezina

[141] Illmakunnas, P., Maliranta, M., & Vainiomäki, J. (2005). Worker Turnover and Productivity Growth . *Applied Economics Letter , 12, no. 7*, 395-398.
[142] Hausknecht, J. P., & Holwerda, J. A. (2013). When Does Employee Turnover Matter? Dynamic Member Configurations, Productive Capacity and Collective Performance. *Organizational Science, 24, no. 1* , 210-225.
[143] Batt, R. (2002). Managing Customer Service: Human Resources Practices, Quit Rates, And Sales Growth . *Academy of Management Journal , 45, No. 3*, 587-597.

Trophy six times (1993/94, 1994/95, 1996/97, 1997/98,1998/99, 2000/01), the William M. Jennings Trophy three times (1993/94, 2000/01, 2007/08), the Hart Memorial Trophy twice (1996/97, 1997/98) and the Ted Lindsay Award twice (1996/97, 1997/98). Yet, the management had not planned well and did not have a suited replacement ready to step up for their number one goalie developing in the minors. Instead, the team was forced to rotate in the backup goaltenders they had, hoping one could fill the void of Hasek's departure. One of those two goalies was Chris Osgood who had a long history with the Red Wings, including three Stanley cup rings but at age 36 he was almost at the end of his playing career. The other was Ty Conklin, a self-described "late bloomer" and journeyman backup goaltender who struggled to compete for the top position in goal over a career of roughly 200 games.

After the 2014/15 season, a similar scenario occurred with Pavel Datsyuk who had been one of the team's leading scorers and defensive players for many years; when he retired after the season in order to finish out his career in his native Russia, management was unprepared and unable to replace him, leaving the 37 year old Zetterberg to shoulder the load himself on the top line.

In sum, while the general manager and coach worked hand-in-hand to execute a successful strategy that ultimately yielded several Stanley Cup championships, the general manager ultimately failed to successfully prepare the team for future continued success. In retrospect, perhaps The organization simply grew stale; as previously noted, an organization is incentivized to hold on to their employees as they have made a financial investment for which they want the maximum return, causing them to be

blinded by the success they may have without having enough foresight to plan for the future of the franchise (Dess *et al* 2001).[144]

## Inability to Adapt

The general management was largely able cope with only receiving late first round draft picks, but in other aspects they appeared unable to adapt when it was really necessary. In the following season, the Detroit Red Wings made it to the final round of the Stanley Cup playoffs and won in six games against the Pittsburgh Penguins. The following year, the Red Wings tried to repeat their success and ended up facing the same opponent, the Pittsburgh Penguins, in the final round of the playoffs; yet, this time the Red Wings lost in game seven, losing the championship title to the team they had defeated the previous year and leaving fans puzzled, if not frustrated.

The Red Wings' number one goaltender Dominik Hasek had retired after winning the cup in the previous season and the team simply did not adapt to the new conditions and changes that Pittsburgh had made in the meantime that included hiring a new head coach, adding players like Andy Wozniewsk, Chris Kunitz, Eric Tangradi, Mathieu Garon, and Bill Guerin. The Penguins knew the players, the coach, and the style they were about to face. Midway through the season, Pittsburgh decided to fire head coach Michel Therrien and hired newcomer Dan Bylsma to give the team an extra kick.[145]

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[144] Dess, G. G., & Shaw, J. D. (2001). Voluntary Turnover, Social Capital, and Organizational Performance. *The Academy of Management Review, 26, no. 3*, 446-456.

[145] AssociatedPress. (2009, February 15). *Pens fires Therrien; Bylsma takes over*. Retrieved April 2020, from ESPN: https://www.espn.com/nhl/news/story?id=3909857 ; Kasan, S. (2011, February 14). *Bylsma: Two Years on the Job* . Retrieved April 2020, from NHL : https://www.nhl.com/penguins/news/bylsma-two-years-on-the-job/c-552701

When a hockey team does not play a game well enough, coaches often pull the goalie and put their number two goalie up with the goal of waking up the team. The same happened here at the head coach level. While the Penguins, similar to the Red Wings, retained their core players, the team also several last-minute trades right before the trading deadline which included acquiring Bill Guerin from the New York Islanders, Andy Wozniewski from the St. Louise Blues, and Chris Kunitz and Eric Tangradi from the Anaheim Ducks.[146] In general, the opposing team made several trades throughout the season to add skill and depth at various positions, while the Detroit Red Wings made no trades at all and decided to stick with the team they had.[147] One could argue that The team missed their opportunity to winning another Stanley Cup because they did not adapt to the changes their opponent made and because they failed to address he void created by Hasek's departure.

## *Individual Players vs. Team*

The Detroit Red Wings had several players that stood out from the team's roster that have had a great contribution to the team's success. For example, Pavel Datsyuk was drafted by the team in 1998 in the sixth round and is considered one of the biggest 'sleeper" picks in draft history. Over the years he has not only won the Stanley Cup twice but also won the Lady Byng Trophy four times in a row (2005/06, 2006/07, 2007/08,

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[146] NHLTradeTracker. (2020). *Pittsburgh Penguins 2008/09*. Retrieved April 2020, from NHL Trade Tracker: http://www.nhltradetracker.com/user/trade_list_by_season_team/Pittsburgh_Penguins/2008-09/1

[147] NHLTradeTracker. (2020). *Detroit Red Wings 2008/09*. Retrieved April 2020, from NHL Trade Tracker : http://www.nhltradetracker.com/user/trade_list_by_season_team/Detroit_Red_Wings/2008-09/1

2008/09), as well as winning the trophy for best defensive forward, the Frank J. Selke Trophy three times in a row (2007/08, 2008/09, 2009/10) and was honored in the 2008/09 All Star Team. In retrospect, in his 14 years with the Detroit Red Wings, he had in four consecutive seasons above 85 points. In the 2007/08 season, he led the NHL league with having +/- 41 points and overall finishing the season with 97 point overall.[148] Datsyuk also replaced the retired and previous team captain Nicklas Lidstrom. In the 2008/09 season, Lidstrom was still the team captain and was an eleven time All-star, four-time Cup champion and won the Norris Trophy for Best defensemen in the league seven times. Lidstrom himself had replaced Hall of Famer, nine time All-Star, and multiple individual trophy winner Steve Yzerman as team captain. In effect, the Red Wings had a lineage of three elite, "all world players" to serve as the captain of the franchise consecutively. Marian Hossa previously played in 2007/08 with the penguins, played the 2008/09 season with DET before being traded away as the team had to decide on who they would keep and who they would trade due to salary cap issues. In retrospect, Hossa, who ended up winning three Stanley Cups, scoring over 500 goals and 1,000 points in his career, can be viewed as an example of turnover taking a positive impact on a team's performance. When Detroit added Hossa to its team roster, he had already nine and half seasons of NHL experience. He showed that he was a highly skilled player not by only by playing 78 or more games per season but also through scoring goals and gaining several points. While I do know that one player alone may not be the only reason for a team's improvement, Hossa may have positively contributed with his experience and skills

[148] HockeyReference. (2020). *Pavel Datsyuk*. Retrieved April 2020, from Hockey Reference: https://www.hockey-reference.com/players/d/datsypa01.html

leading to an improved team dynamic between the players that may have harmonized better. As explained earlier, it is important to match the right players with each other as well as the coach to create a good, reliable, trustworthy relationship so that scoring attempts and strategies work more smoothly (Illmakunnas *et al.* 2005).[149] Hausknecht and Holwerda (2013), adding that new incoming human capital adds value to an organization as incoming employees may bring in experience, and different skills that can benefit the organization as whole.[150] Contrary, Batt (2002) states that the loss of human capital will deplete the collective level of knowledge and experience within the team.[151]

## *Summary*

In the end, the consistency of the Red Wings was both the blueprint for their reign as a powerhouse in the National Hockey League as was their eventual downfall. Its reign of supremacy lasted so long, in part, because it formed a steadfast core from to the diligence of the management and the smooth transitions as the torch was passed from team to team, but the supremacy ended because it stuck to the design far too long. The rest of the league was fluid while it remained a solid rock. The dominance of the team is impressive, but now so too is the hole into which it has filled. The team has not made it past the first round of the playoffs since 2014, with four consecutive seasons out of the

[149] Illmakunnas, P., Maliranta, M., & Vainiomäki, J. (2005). Worker Turnover and Productivity Growth . *Applied Economics Letter , 12, no. 7*, 395-398.
[150] Hausknecht, J. P., & Holwerda, J. A. (2013). When Does Employee Turnover Matter? Dynamic Member Configurations, Productive Capacity and Collective Performance. *Organizational Science, 24, no. 1* , 210-225.
[151] Batt, R. (2002). Managing Customer Service: Human Resources Practices, Quit Rates, And Sales Growth . *Academy of Management Journal , 45, No. 3*, 587-597.

playoffs since 2016/17 and had the worst record in the NHL at the time of the COVID-19-related suspension of the 2020 season.

## Calgary Flames

In contrast to TBL and DET, the Calgary Flames show a different type of relationship between turnover and team performance, leaving one with the question as to whether there really is an impact of turnover on team performance or if the relationship between the two variables simply differs on a case-to-case basis due to various circumstances and local factors. The team experiences a player turnover rate in excess of two thirds of the total player roster (68%), yet was still was able to win over half (56%) of their games, suggesting that perhaps it is still possible to keep win percentage above the league average while still experiencing high player turnover. In short, the CGY outcome could be a possible indicator that turnover can impact organizations' performance in markedly different ways. In the following sections, I explain how managerial turnover and the mismanagement of injuries affected the teams' turnover rate, while leadership perhaps helped them to still finish the season above the league average and make the Stanley Cup playoffs.

### 2008/09 Season

#### *Managerial Turnover*

The team had experienced a few significant managerial changes during the 2008/09 season. Mike Keenan, also called "Iron Mike", was the head coach of the Calgary Flames. Keenan had championship pedigree, winning a championship at every

level he had coached, including a Stanley Cup in 1994 with the New York Rangers. But after failing to meet the owner's and general manager's expectations, the team fired him in May 2009.[152] Keenan blamed the number of injuries for the poor season finish, but management also held him responsible for that outcome, too.[153]

Lago-Peñas (2011) refers to the phenomena of making the coach or manager responsible for the negative outcome of the season responsible as *scapegoating.*[154] In other words, when organizations fail, whether they are a financial firms or a hockey team, the failure tends to be attributed to management, often resulting in firings and layoffs. In addition, Audas *et al.* (2002) assert that coaches and managers need some time in order to gain organization-specific knowledge before a team can experience a significant improvement in performance.[155] When Keenan was fired, he had already coached the team two full seasons; whether two years is enough to build NHL team-specific knowledge, however, is hard to tell. Different people may require different amounts of time to show an improvement on the learning curve, while the size and complexity of an organization may also lengthen the learning process.[156]

Keenan also earned a notorious reputation as a tough and difficult coach unable to maintain working relationships with players and organizations.[157] Keenan may have

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[152] Bezbatchhenko, M.-A. (2009, May 22). *Calgary Flames Head Coach Mike Keenan Fired: Who's In?* Retrieved February 2020, from Bleacher Report: https://bleacherreport.com/articles/181685-calgary-flames-head-coach-mike-keenan-fired-whos-in

[153] Spencer, D. (2009, May 22). *Flames fire Mike Keenan*. Retrieved April 2020, from The Star: https://www.thestar.com/sports/2009/05/22/flames_fire_mike_keenan.html

[154] Lago-Peñas, C. (2011). Coach Mid-Season Replacement and Team Performance in Professional Soccer. *Journal of Human Kinetics , 28*, 115-122.

[155] Audas, R., Dobson, S., & Goddard, J. (2002). The Impact of Managerial Change on Team Performance in Professional Sports . *Journal of Economics and Business, 54*, 633-650.

[156] Staw, B. (1980). The Consequences of Turnover. *Journal of Occupational Behavior (Pre-1986), 1 (4)* , 253-273.

[157] ESPN. (2017, December 4). *Mike Keenan's career is maked by controversy, but his Hall of Fame credentials are impeccable*. Retrieved March 2020, from ABC 7: https://abc7ny.com/sports/mike-keenans-career-is-marked-by-controversy-but-his-hall-of-fame-credentials-are-impeccable/2735483/ ; Proteau, Adam (May 30, 2013). "John Tortorella not manager enough to be NHL coach". The Hockey News. Archived from the original on 7 June 2013. Retrieved 1 June 2013.

helped push players towards greater success – the 1994 Rangers is a good example - but he also drove them to their mental and physical limits with his coaching techniques. During his NHL coaching career, Keenan had major conflicts with numerous team stars including Trevor Linden and Brett Hull, the latter of whom he stripped of his team captaincy after standing up for a fellow player Keenan had benched. As former Chicago Blackhawks captain Jeremy Roenick noted:

> "Playing for coach Mike Keenan in Chicago was like camping on the side of an active volcano. You had to accept the reality that he erupted regularly and that there was always a danger of being caught in his lava flow. He was a tyrant, a schoolyard bully, an old-school coach who tried to motivate players through intimidation, belittlement and fear…The veterans on the team didn't fear Keenan; they merely despised him, and I believe Mike liked it that way. He was always hard on players, like a drill sergeant trying to ready recruits for the dangers ahead… Keenan was a screamer who thought nothing of singling out one of his players for a personal attack, just to let the team know how upset he was with how the team was performing."[158]

[158] https://deadspin.com/mike-keenan-the-nhls-last-great-asshole-coach-5958837

Once, in the 1987 playoffs, he pulled goaltenders Ron Hextall and Glenn Resch off the ice a total of five times within a single game, while three years later, he pulled goaltender Greg Millen in favor of Ed Belfour a total of four times in eight games.[159]

After two consecutive first round playoff losses, the general manager, Darryl Sutter, replaced Keenan with his brother Brent Sutter. After retiring as a player in 1998, Sutter bought the Red Deer Rebels of the Western Hockey League and served as the team's general manager and head coach for eight seasons, winning the Memorial Cup in 2001. He later coached the Canadian junior team to gold medals at the 2005 and 2006 World Junior Hockey Championships, compiling an impressive 19–0–1 record in three years as the national junior team head coach.

This suggests that Brent Sutter had extensive experience not just as a hockey player but also as a head coach and general manager at various levels of professional and international hockey.

His older brother and CGY's general manager, Darryl Sutter, also had previous experience as head coach of the Chicago Blackhawks, St Louis Blues, and the Calgary Flames before he was promoted to become the general manager of the team. By that point, He had gained considerable experience in the NHL as a player and head coach, building up his reputation.

Yet, despite their combined experience coaching and managing professional hockey, having two brothers in key leadership positions can lead to potential difficulties

[159] Kantowski, R. (2020, January 3). *Cornell's arrival brings back memories for Knights' Eliot* . Retrieved March 2020, from Las Vegas Review Journal : https://www.reviewjournal.com/sports/sports-columns/ron-kantowski/cornells-arrival-brings-back-memories-for-knights-eliot-1927800/

if there are personality conflicts or interfamily conflict. On the other hand, it is also possible that they utilize their experience and bond quite well and could potentially find a common strategy to lead the team into the playoffs.[160] In other words, the Sutter brothers made it work and used their experience with each other to the better and created a coherent entity in the front office that benefited the team.

### *Mismanagement of Injuries*

In professional sports, injuries are common, and managers have to plan ahead of time on how they will cope with these issues if they happen. For example, managers might make sure that they will have additional players on the team roster that have the same skills or similar talent to replace their top players. This corresponds with Stuart's (2017) suggestion that hockey teams tend to offset the loss of an injured player by adding another player to the team via trade, free agent signing, or promotion. However, the addition of another player can also cause disruption as coaches may engage in a series of experiments and different working arrangements in order to determine which combination of players are most productive together. In other words, the coach may "shuffle the lines" and reorganize forward and defensive players in the search of rebuilding chemistry between the players to optimize the team's performance.[161] The addition of players to a team may add depth, but if the players have not previously played together may cause a disruption in a team's organization.

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[160] Stuart, H. C. (2017, November 13). Structural Disruption, Relation Experimentation, and Performance in Professional Hockey Teams: A network Perspective on Member Change. *Organization Science, 28 (2)*, 283-300.
[161] Stuart, H. C. (2017, November 13). Structural Disruption, Relation Experimentation, and Performance in Professional Hockey Teams: A network Perspective on Member Change. *Organization Science, 28 (2)*, 283-300.

The majority of the season went well and the Flames finished the 2008/09 season with 98 points and a point percentage of 0.598 above the league average.[162] Although the team finished second place in the Northwest Division right behind the Vancouver Canucks, the team faced immense difficulties towards the end of the regular season. In the last week of the season, players Cory Sarich, Robyn Regehr, Dion Phaneuf, and Curtis Glencross were all unable to play due to injuries, causing serious salary cap issues. The team was so close to the cap ceiling that they could not recall players to take the places of those injured without sending players down to the minors. They decided that to keep the injured players on the roster since they otherwise would not be able to player for ten games if they were placed on LTI. The decision did not allow for any new players to be added since they were close to the floor ceiling of due to the contracts. Since they did not plan well ahead and consider the possibility that multiple players could be injured, in their last regular season game the team was forced to dress only 15 players instead of the normal 18 players.[163] Injuries had not only made it harder towards the end of the season and during the playoffs but were present during the entire 2008/09 season. For example, defender Mark Giordano required major shoulder surgery, Todd Bertuzzi required major knee surgery, Brandon Prust suffered from a concussion, Robyn Regehr (D) hurt his medial collateral ligament (MCL), Cory Sarich broke his foot, Daymond Langkow (C) hurt his hand, and Rene Bourque suffered from a high ankle sprain, effectively sidelining two of the team's leading scorers as well as a puck-moving defenseman and a top line

[162] HockeyReference. (2020). *Calgary Flames 2008/09 Roster and Statistics*. Retrieved February 2020, from Hockey Reference: https://www.hockey-reference.com/teams/CGY/2009.htm
[163] Pike, R. (2015, August 3). *Relive the 2008-09 Calgary Flames Season* . Retrieved February 2020, from Flamesnation: https://flamesnation.ca/2015/08/03/relive-the-2008-09-calgary-flames-season/

defensive pair.[164] The injuries also took a negative toll on the team's ability to compete in the playoffs as defenders Rhett Warrener, Mark Giordano and Robyn Regehr missed the entire playoffs. Defenseman Phaneuf missed Calgary's final game six against the Chicago Blackhawks due to a broken rib; it turned out that he has been playing with broken ribs throughout the playoffs.[165] The physical defenseman Cory Sarich, two-way center Craig Conroy, and second line wingers Langkow and Bourque also played injured during the playoffs, limiting the team's ability to effectively compete against the Blackhawks.

The team arguably had better depth at defense than offense, which meant when they lost Bertuzzi, Langkow, and Bourque they essentially lost three of their top scoring players. With Cammalleri and Iginla on the top line, that meant teams could shut them down knowing there was little depth in scoring after that top line. The loss of players due to an injury may result in involuntary turnover from the managerial perspective as they have to offset the team's loss by adding another player or have other players on the roster to fill the position. It is the management's job to plan ahead of time and make sure the roster has players that already know each other's playing style and therefor cause less disruption since the team is not forced to rebuild trust and cohesion as if they would be if they added completely new players.

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[164] Wharnsby, T. (2018, February 17). *Rene Bourque's Olympic swan song worth all the hockey scars*. Retrieved March 2020, from CBC Sports: https://www.cbc.ca/sports/olympics/pyeongchang/ice-hockey/rene-bourque-olympic-hurrah-canada-1.4540810; TheBleacherReport. (2009, April 3). *The Mash Report: Injuries from around the NHL Playoff's Picture* . Retrieved March 2020, from The Bleacher Report: https://bleacherreport.com/articles/150250-the-mash-report-injuries-from-around-the-nhls-playoff-picture; HockeyReference. (2020). *Todd Bertuzzi* . Retrieved February 2020, from Hockey Reference: https://www.hockey-reference.com/players/b/bertuto01.html

[165] TheCanadianPress. (2009, April 28). *Hobbled Flames go out of playoffs the same way they came in*. Retrieved February 2020, from Metro: https://www.metro.us/news/hobbled-flames-go-out-of-playoffs-the-same-way-they-came-in/tmWidB---06EmvDUVuWrUI; TheCanadianPress. (2009, April 28). *Flames' season reduced to steam and ashes after first-round playoff exit*. Retrieved February 2020, from NHL.com: http://www.nhl.com/ice/m_news.htm?id=420547

## *Leadership: Individual Player vs. Team*

Captain Jarome Iginla (RW) who has been playing for the Flames since the 1996/97 season is not only a veteran player on the team, but also great leader on and off the ice for the team. Iginla was not the loud and talkative kind of leader, but a leader who led by example. Whenever Iginla did have something to say, the team listened because they knew that what he has to say must have been important since he is usually the quiet NHL player.[166] Between practice and playing NHL games with the Calgary Flames, he spent his time teaching kids hockey in his non-profit hockey school, raising and donating money to the Diabetes Research Association or even visiting Canadian military troops in Afghanistan.[167]

On the ice, Iginla pushed himself to always be the best player he could be and kept working on bettering himself for the team and his teammates. He thought it was necessary to throw yourself into key situations to become better and gain more experience in order to teach younger players to achieve their potential.[168] During the 2008/09 season, Iginla reached several milestones. He recorded his 400th career assist early on in the season against the Colorado Avalanche. On March 1st in the game against Tampa Bay Lightning, Iginla surpassed Theoren Fleury's franchise record of 830 career

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[166] NHL. (2019, February 23). *Iginla - The Captain*. Retrieved April 2020, from NHL: https://www.bing.com/videos/search?q=jarome+iginla+leadership+lockeroom&ru=%2fvideos%2fsearch%3fq%3djarome%2biginla%2bleadership%2blockeroom%26FORM%3dHDRSC3&view=detail&mid=A47F91ADBAEFF094295CA47F91ADBAEFF094295C&&FORM=VDRVRV

[167] Vocaturo, N. (2018, June 7). *Be a Player: Rewind Jarome Iginla.* Retrieved April 2020, from NHLPA: https://www.nhlpa.com/news/1-15149/be-a-player-rewind-jarome-iginla ; Singh, D. (2019, February 8). *Black History Month: Jarome Ignila' 'dod everything the right way'*. Retrieved April 2020, from Sports Net: https://www.sportsnet.ca/hockey/nhl/black-history-month-jarome-iginla-everything-right-way/

[168] Lomo, C. (2012, January 16). *500 Reasons to Smile for Ignila.* Retrieved April 2020, from NHLPA: https://www.nhlpa.com/news/1-13240/500-reasons-to-smile-for-iginla

points as well as score his 400th career goal. Almost every season he played the full 82 games, scoring more than 30 goals and 70 points. Throughout his career, he received several awards including the Art Ross Trophy (2001/02), the Maurice Richard Trophy (2001/02, 2003/04), the Ted Lindsay Award (2001/02), the King Clancy Memorial Trophy (2003/04), and lastly in 2008/09 the Mark Messier Leadership Award.[169] The Ted Lindsay award is one of the most special awards for an NHL player since fellow NHL players vote on who should receive the award as the most outstanding player.[170] Veteran players, like Iginla are valuable to an NHL franchise as they can teach and motivate younger incoming players.

While captain Jarome Iginla was a leader to his teammates and was also perceived as an outstanding player by other NHL colleagues, winning a game is still a team effort even though that the distribution among the players might vary.[171] Each player may have a particular skill, experience or talent, but the coordination and trust between the team also matters. No player alone will be able to win the game by himself. Wittenbaum *et al.* (1998) stated that the coordination is a crucial factor if a team desires to improve its performance. Coordination is in their opinion highly dependent on several underlying factors including the collective task (e.g., task interdependence, task uncertainty), team composition (e.g., diversity, group size, recompositing), temporal factors and limits (e.g., time pressure, milestones), and environmental constrains (e.g., feedback, goal setting,

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[169] Hockey Reference. (2020). *Jarome Iginla*. Retrieved February 2020, from Hockey Reference: https://www.hockey-reference.com/players/i/iginlja01.html

[170] NHL. (2019, June 19). *NHL Ted Lindsay Award Winners*. Retrieved April 2020, from NHL: https://www.nhl.com/news/nhl-ted-lindsay-award-winners-complete-list/c-28797828

[171] NHL. (2019, March 2). *Wild about Iginla night in Calgary*. Retrieved April 2020, from NHL: https://www.bing.com/videos/search?q=jarome+iginla+leadership+lockeroom&&view=detail&mid=09DAA1F368AF0710D5DE09DAA1F368AF0710D5DE&&FORM=VRDGAR&ru=%2Fvideos%2Fsearch%3Fq%3Djarome%2Biginla%2Bleadership%2Blockeroom%26FORM%3DHDRSC3

intervention, work context).[172] Within a team, each team member might have different skills, experiences or talent, but what ultimately matters are how a team combines each of their skill and characteristic traits to achieve the common goal of winning the game. If team members do not put in the effort to coordinate their tasks on the ice, and that might mean that they have to adjust their coordination depending on who they play, then that may lead to a decline in performance. This argument is also supported by Staw (1980) who states that each employee may serve a different function some may be hired with the intention of serving in a knowledge function while other may be serving as an energizing factor within a team.[173] However, Iginla's leadership helped the team to keep pushing through difficult times and do the best they could with the limited resources and various roadblocks thrown in their way. But Iginla's effort was not enough to help the team to make it into the playoffs as the several injured players did not return in time for the team to make up for the losses before the decisions are being made who would enter into the playoffs.

## *Summary*

The Calgary Flames had a unique season when it comes to turnover because of the constraints of the salary cap and the amount of games lost due to injury, but because of the depth of their roster they found a way to persevere even when they had a forced disadvantage. A combination of strong leadership and versatile players allowed the

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[172] Wittenbaum, G., Vaughan, S., & Strasser, G. (1998). Chapter 9: Coordination in Task-Performing Groups. In R. Tindale, L. Health, J. Edwards, E. Posavac, F. Bryant, Y. Suarez-Balcazar, . . . J. Myers, *Theory and Research on Small Groups* (pp. 515-558). New York, NY, USA: Plenum Press.

[173] Staw, B. (1980). The Consequences of Turnover. *Journal of Occupational Behavior (Pre-1986), 1 (4)* , 253-273.

Flames to still achieve regular season success and the Flames gambled with a skeleton crew to get past a salary cap induced hitch as they fought to make the playoffs. They may not have won the Stanley Cup, but given the problems and obstacles they overcame to qualify for the playoffs, In the end, it was a successful season.

## Buffalo Sabres

The Buffalo Sabres (BUF) were selected since their team had similar low win percentages over two consecutive seasons (2013/14, 2014/15) despite experiencing an improvement in reduced player turnover. During 2013/14 season, the team experienced a turnover percentage of 56.41% associated with a 25.61%-win percentage. In the following season, the team had only a turnover of 33.33% and a win percentage of 28.05% indicating a small improvement despite a decrease of turnover by almost half.

Below, I explain how the combination of managerial changes, bad decisions, and the team's location has had a negative impact on the franchise and may explain how and why the Sabres were unable to significantly improve their win percentage despite the decrease in player turnover between the 2013/14 and 2014/15 seasons. Specifically, I explaining how turnover in higher managerial ranks may cause operational disruption and can trigger team turnover as new managers may change their strategy with the aim of improving the team's performance. Next, I will also describe how the location may be a hindrance in signing free agent players, followed by a description of several bad managerial decisions (e.g., unnecessary turnover) that may have led to a poorer team performance by disrupting the team's chemistry.

## 2013/14 Season & 2014/15 Season

### *Managerial Turnover*

In 2013/14, the Buffalo Sabres franchise owner Terrance Pegula decided to fire general manager Darcy Regier and head coach Ron Rolston at the same time, causing great uncertainty for the team since they had to replace both positions and implement a new team strategy simultaneously.[174] Audas. *et al.'s* (1997) research observes that teams that do not retain their coaches often fared worse the following season.[175] Throughout a majority of his coaching career Rolston was often only an assistant coach , and his position as an interim coach and then head coach with the Sabres only lasted 51 games over two seasons before he was fired. That would ultimately be his first and last experience as an NHL coach, and raises a question as to why a franchise in the midst of major turmoil would turn to a person with no previous experience as an NHL head coach [176]

While Rolston did not last as the team's head coach, Darcy Regier was the general manager for the team from 1997 until 2013, making him the longest-serving general manager in the franchise's history. After Regier was fired, owner Terry Pegula hired Pat Lafontaine, a former NHL All-Star, Hall of Fame player, and local legend in Buffalo as the President of Hockey Operations. While he took over the general manager's

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[174] Emke, D. (2013, November 13). *Buffalo Sabres Fire Coach, GM; Hire Ted Nolan and Pat LaFontaine* . Retrieved April 2020, from Bleacher Report: https://bleacherreport.com/articles/1848886-nolan-back-as-sabres-coach-regier-out-pat-lafontaine-joins-teams-front-office

[175] Audas, R., Dobson, S., & Goddard, J. (1997). Team Performance and Managerial Change in the English Football League. *Economic Affairs, 17*, 30-26

[176] HockeyReference. (2020). *Ron Rolston*. Retrieved February 2020, from Hockey Reference: https://www.hockey-reference.com/coaches/rolstro01c.html

job until he found a replacement for Regier, he decided shortly afterwards to hire Tim Murray as general manager for the Sabres. soon enough, However, front office issues arose as Lafontaine wanted to work out an extension contract with goalie Ryan Miller, while Murray was pushing for a trade. the front office issues quick became "ugly", as described by Lafontaine, resulting in his decision to resign from his position as the President of Hockey Operations of the Sabres after just a few weeks of being appointed.[177]

## *Mismanagement: Bad Managerial Decisions*

In 2013/14, the Buffalo Sabres franchise owner Terrance Pegula decided to fire general manager Darcy Regier and head coach Ron Rolston at the same time, causing great uncertainty for the team since they had to replace both positions and implement a new team strategy simultaneously.[178] Audas. *et al.'s* (1997) research observes that teams that do not retain their coaches often fared worse the following season.[179] Throughout a majority of his coaching career Rolston was often only an assistant coach , and his position as an interim coach and then head coach with the Sabres only lasted 51 games over two seasons before he was fired. That would ultimately be his first and last experience as an NHL coach, and raises a question as to why a franchise in the midst of

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[177] AssociatedPress. (2014, March 1). *Pat LaFontaine resigns from Sabres*. Retrieved December 2019, from ESPN: https://www.espn.com/nhl/story/_/id/10538845/pat-lafontaine-resigns-buffalo-sabres-president-hockey-operations; Shoalts, D. (2014, March 3). *Shoalts: Nolan's future is uncertain in the wake of LaFontaine's departure*. Retrieved February 2020, from The Globe and Mail: https://www.theglobeandmail.com/sports/hockey/shoalts-nolans-future-is-uncertain-in-the-wake-of-lafontaines-departure/article17255427/ ; Iversen, P. (2014, March 1). *Buffalo Sabres President Pat Lafontaine resignes amid 'ugly' front office drama*. Retrieved April 2020, from SB Nation: https://www.sbnation.com/nhl/2014/3/1/5460758/buffalo-sabres-president-pat-lafontaine-resigns-tim-murray-ryan-miller

[178] Emke, D. (2013, November 13). *Buffalo Sabres Fire Coach, GM; Hire Ted Nolan and Pat LaFontaine* . Retrieved April 2020, from Bleacher Report: https://bleacherreport.com/articles/1848886-nolan-back-as-sabres-coach-regier-out-pat-lafontaine-joins-teams-front-office

[179] Audas, R., Dobson, S., & Goddard, J. (1997). Team Performance and Managerial Change in the English Football League. *Economic Affairs, 17*, 30-26

major turmoil would turn to a person with no previous experience as an NHL head coach [180]

While Rolston did not last as the team's head coach, Darcy Regier was the general manager for the team from 1997 until 2013, making him the longest-serving general manager in the franchise's history. After Regier was fired, owner Terry Pegula hired Pat Lafontaine, a former NHL All-Star, Hall of Fame player, and local legend in Buffalo as the President of Hockey Operations. While he took over the general manager's job until he found a replacement for Regier, he decided shortly afterwards to hire Tim Murray as general manager for the Sabres. soon enough, However, front office issues arose as Lafontaine wanted to work out an extension contract with goalie Ryan Miller, while Murray was pushing for a trade. the front office issues quick became "ugly", as described by Lafontaine, resulting in his decision to resign from his position as the President of Hockey Operations of the Sabres after just a few weeks of being appointed.[181]

## *Location*

Looking at the 2013/14 and 2014/15 seasons, as well as previous seasons, it is possible that there are other factors that have contributed to Buffalo's woes.

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[180] HockeyReference. (2020). *Ron Rolston*. Retrieved February 2020, from Hockey Reference: https://www.hockey-reference.com/coaches/rolstro01c.html

[181] AssociatedPress. (2014, March 1). *Pat LaFontaine resigns from Sabres*. Retrieved December 2019, from ESPN: https://www.espn.com/nhl/story/_/id/10538845/pat-lafontaine-resigns-buffalo-sabres-president-hockey-operations; Shoalts, D. (2014, March 3). *Shoalts: Nolan's future is uncertain in the wake of LaFontaine's departure*. Retrieved February 2020, from The Globe and Mail: https://www.theglobeandmail.com/sports/hockey/shoalts-nolans-future-is-uncertain-in-the-wake-of-lafontaines-departure/article17255427/ ; Iversen, P. (2014, March 1). *Buffalo Sabres President Pat Lafontaine resignes amid 'ugly' front office drama*. Retrieved April 2020, from SB Nation: https://www.sbnation.com/nhl/2014/3/1/5460758/buffalo-sabres-president-pat-lafontaine-resigns-tim-murray-ryan-miller

One potential factor could the franchise's location. Buffalo is a city with roughly 250,000 in population size, ranking as 83rd smallest city in the United States. Historically, Buffalo began as a small trading community until 1825 when the Erie Canal was constructed. After World War II, the city became a center for manufacturing companies creating jobs and infrastructure. However, since the 1950's, the population has been steadily declining. Today, Buffalo is a small city with an infrastructure reminding people of a smaller town.[182] Cities with NHL franchises like Winnipeg and Raleigh have comparable population sizes to Buffalo. However, Raleigh gives out tax incentives that cause businesses, such as MetLife Insurance, to move their offices to the city, while the state of North Carolina only has a corporate tax of 2.5% compared to New York's which is more than double at 6.5% .[183]

According to published interviews with several agents representing NHL players, the team has a harder time convincing free agents and other players to sign with their team because it is perceived as an unattractive location in which to live.[184] For younger players eager to break into the NHL with any franchise, the location might not matter too much but interviews with agents and NHL players suggests otherwise.

The franchise also has a history of players refusing to sign and free agents choosing to leave rather than stay. For example, in 2011, the team made a trade with the

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[182] WorldPopulationReview. (2020). *Buffalo, New York Population 2020*. Retrieved January 2020, from World Population Review: http://worldpopulationreview.com/us-cities/buffalo-population/

[183] Cammenga, J. (2019, January 27). *State Corporate Income Tax Rates and Brackets for 2019*. Retrieved March 2020, from Tax Foundation : https://taxfoundation.org/state-corporate-rates-brackets-2019 ; Chemtob, D. (2017, July 3). *Study: North Carolina is best state for starting a business*. Retrieved March 2020, from Triangle Business Journal: https://www.bizjournals.com/triangle/news/2017/07/03/study-north-carolina-is-best-state-for-starting-a.html

[184] Wyshynski, G. (2015, February 15). *No one wants to play in Edmonton Winnipeg according to agents*. Retrieved February 2020, from Yahoo! Sports: https://sports.yahoo.com/blogs/nhl-puck-daddy/no-one-wants-to-play-in-edmonton--winnipeg-according-to-agents-182227244.html

Nashville Predators to gain the rights to the then highly touted prospect forward Jimmy Vesey in exchange for a draft pick. Vesey, however, did not want to sign with Buffalo when his contract rights lapsed, opting instead to sign with the New York Rangers even though it likely meant he would receive less playing time.[185] Other players who have demanded trades over the years include Brendan Lemieux, Evan Rodrigues, and Zach Bogosian.[186] Co-Captain Daniel Brière (C) played for the team from 2002/03 until 2006/07. He was a decent player throughout his career but went to arbitration with Buffalo in 2006 as his salary agreement expired and negotiated a one-year extension, after which he became a free agent and left for the Philadelphia Flyers (PHI). Philadelphia offered him an eight-year, $52 million contract with a no-trade clause that he promptly signed.[187] The other Co-Captain, Chris Drury (C) also left the team as his contract expired after the 2006/07 season, signing a five-year $35.25 million contract with the New York Rangers (NYR).[188] Both co-captains leaving at the same time in 2006/07 caused turmoil for the remaining team. Struggling to find a new captain, the team appointed five different players in the next season to be the captain (Brian

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[185] Stanley, R. (2016, March 26). *Vesey opting not to sign with Predators*. Retrieved December 2019, from NHL: https://www.nhl.com/news/jimmy-vesey-opting-not-to-sign-with-nashville-predators/c-279966600; Brooks, L. (2016, December 1). *Jimmy Vesey showing why Sabres right to be 'pissed off'*. Retrieved November 2019, from NY Post: https://nypost.com/2016/12/01/jimmy-vesey-showing-why-sabres-right-to-be-pissed-off/; Gold-Smith, J. (2019). *Report: Sabres speak to Rangers about Vesey*. Retrieved January 2020, from The Score: https://www.thescore.com/nhl/news/1786317

[186] Battaglia, C. (2015). *Report: Sabres traded Lemieux to Jets because he refused to sign*. Retrieved February 2020, from The Score: https://www.thescore.com/nhl/news/699212; BuffaloHockeyBeat. (2020, February). *Sabres' Evan Rodrigues on trade request: 'I just want to play hockey'*. Retrieved February 2020, from Buffalo Hockey Beat: https://www.buffalohockeybeat.com/sabres-evan-rodrigues-on-trade-request-i-just-want-to-play-hockey/ ; BuffaloHockeyBeat. (2020, February). *Sabre's Zach Bogosian mum on if he requested trade*. Retrieved February 2020, from Buffalo Hockey Beat : https://www.buffalohockeybeat.com/sabres-zach-bogosian-mum-on-if-he-requested-trade/

[187] AssociatedPress. (2006, August 3). *Sabres accept Briere arbitration, quelling split talk*. Retrieved February 2020, from ESPN: https://www.espn.com/nhl/news/story?id=2538650; HockeyReference. (2020). *Daniel Briere*. Retrieved February 2020, from Hockey Reference: https://www.hockey-reference.com/players/b/brierda01.html ; ESPN. (2007, July 1). *Briere agrees to eight-year deal with Philadelphia.* Retrieved February 2020, from ESPN: https://www.espn.com/nhl/news/story?id=2922605

[188] TheCanadianPress. (2007, July 1). *New York Rangers sign Star Centres Scott Gomez and Chris Drury.* Retrieved February 2020 , from The Hockey News: https://thehockeynews.com/news/article/new-york-rangers-sign-star-centres-scott-gomez-and-chris-drury-1; HockeyReference. (2020). *Chris Drury*. Retrieved February 2020, from Hockey Reference: https://www.hockey-reference.com/players/d/drurych01.html

Campbell, Jochen Hecht, Tony Lydman, Jason Pominville, and Jaroslav Spacek).[189] Essentially, the team lost two leaders that had the role of guiding and teaching younger and fellow teammates. NHL player agents also reported in 2015 that the Buffalo Sabres, along with the Edmonton Oilers, Winnipeg Jets, Ottawa Senators, and Toronto Maple Leafs are the top five teams that are listed on the no-trade list of numerous NHL players.[190]

With an increasing number of women participating in the labor force, Team location may increasingly be as important to a player's spouse as it is to the player when it comes to signing a contract. For instance, Jacob Trouba, a talented young defensemen had been drafted by the Winnipeg Jets where he established himself as an up-and-coming player, but when he began a relationship with a medical student he knew he needed to play in a city that would allow both of them to pursue their careers and began to publicly appeal for a trade.[191] He was quickly signed by the New York Rangers, a team in a city that met both his and his fiancé's professional requirements. Buffalo's Ryan Miller, as mentioned earlier, was traded in a deadline deal because the team knew they would not resign him as a free agent. He had married an actress, Noureen DeWulf who was trying to establish herself in her career and needed to be closer to Hollywood. Miller had made up his mind that he would sign with a West Coast team if possible, to aid her career.[192] He

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[189] HockeyReference. (2020). *2007-08 Buffalo Sabres Roster and Statistics*. Retrieved February 2020, from Hockey Reference : https://www.hockey-reference.com/teams/BUF/2008.html

[190] Wyshynski, G. (2015, February 15). *No one wants to play in Edmonton Winnipeg according to agents*. Retrieved February 2020, from Yahoo! Sports: https://sports.yahoo.com/blogs/nhl-puck-daddy/no-one-wants-to-play-in-edmonton--winnipeg-according-to-agents-182227244.html

[191] Kaplan, E. (2019, August 28). *'Her career is as important as my career': How Jacob Trouba and Kelly Tyson balance their ambitions*. Retrieved April 2020, from ESPN: https://www.espn.com/nhl/story/_/id/27476743/her-career-important-my-career-how-jacob-trouba-kelly-tyson-balance-their-ambitions

[192] Moritz, A. (2018, February 6). *Family time is the best timefor Ryan Miller*. Retrieved April 2020, from Buffalo News: https://buffalonews.com/2018/02/06/family-time-is-the-best-time-for-ryan-miller/

ended up signing a three-year contract with Vancouver, but this allowed his wife and child to live in California while he played in Vancouver until he eventually signed a contract with the Anaheim Ducks.

### *Summary*

In summary, the Buffalo Sabres were consistently in disarray during the two seasons studied. Coaches came and went, the front office disagreed over strategy and personnel, , the attempts to leverage a losing season into a number one overall pick was unsuccessful, and players bolted for other cities and teams at the first chance they got. In short, the team became more of a place of banishment than a preferred destination of choice. To date, the Buffalo Sabres have never won a Stanley Cup since joining the league in 1970 and the recent streak of bad performances has continued for season after season with no visible end in sight.

## Edmonton Oilers

The Edmonton Oilers (EDM) were selected because their team has a history of not being able to improve its standing despite having several first round draft picks and low turnover rates associated with low win percentages. Specifically, the team had in the 2012/13 season a turnover of 19.35% and a win percentage of 39.58%. Over eleven seasons the team also experienced several managerial changes (e.g., coach, general manager) that may explain the struggle of the team to improve its performance despite low turnover. They had a total of six general manager changes and eight coach changes from 2008 to 2019. Below, I will be describing how the Edmonton's culture of losing, the

high number of managerial changes, the franchises managerial mistakes and its location has been affecting the team's performance. Even though that the team had similar low turnover rates like the Detroit Red Wings, the team experiences another complexity of underlying factors that may have negatively influenced their performance.

Historically, few NHL teams have had the sort of legendary success as the Edmonton Oilers. They joined the league in the 1979/80 season and by 1990 they had won 5 championships. This was accomplished by joining the league with a roster comprised of many of the best players ever to lace up skates. Wayne Gretzky, owner of more records than any professional sports athlete is hands down the best player in the history of the game, and he was complimented by generational superstar talents like Mark Messier, Paul Coffey and Jari Kurri.[193] It also included a defenseman named Kevin Lowe. During the first decade of the Oilers they were dominant. Statues of the players decorate the city. But that was then.

## 2012/13 Season

The league experienced in 2012/13 a labor dispute between the NHL and the NHLPA which has led to almost a 60% cancellation of all games and events. The NHL franchises would only play 48 of the 82 regular season games.[194] The reduction of played games might have had influence the turnover rates across the entire league as players are less likely to be injured and the normal turnover movement between NHL teams as well as minor leagues may not happens as often. Regardless, I do believe that the lookout only

[193] Hockey Reference. (2020). *Wayne Gretzky*. Retrieved April 2020, from Hockey Reference : https://www.hockey-reference.com/players/g/gretzwa01.html
[194] NHL. (2019). *NHL History*. Retrieved June 2019, from NHL Records: https://records.nhl.com/history

minimal affects the teams as many hockey players tend to play in lockout seasons with other international hockey leagues. Additionally, even though that the teams played a reduced amount of games the leagues had on average about 37% turnover which is only 3% lower compared to normal, fully played seasons.

## *A Culture of Losing*

After the introduction of the salary cap in 2005, the Edmonton Oilers seemed to be able to adjust to the new rules as they managed to enter the playoffs and ended up playing in the final match. However, the team lost in the Stanley Cup finals to the Carolina Hurricanes in the seventh game. Ever since then the team has established a culture of losing. The NHL wanted to create parity within the league by awarding the worst teams with first-round picks, but instead it created an incentive for NHL franchises to fail on purpose. This caused teams like the Edmonton Oilers to create a culture around losing games instead of winning. In eleven seasons (2008/09 to 2018/19), the Edmonton Oilers had a total of six general manager changes and eight coach changes but was still unable to bring any change to the franchise that would result in an improved performance of the team. As *Bleacher Report* writer Jonathan Willis (2014) stated:

> "The term 'cultural change'… At its lowest, it's an empty phrase that advocates managerial/ coaching change for the sake of change. Because

> the culture is nebulous and internal, the new guy can proclaim it changed whenever he wants, regardless of what he actually does."[195]

In other words, just hiring and firing managers and coaches does not mean there is actual improvement happening. Usually, coaches or managers get fired when they do not live up to the expectation of the owner or management in general (Allen *et al* 2012). But what if the culture of the organization is the problem in the first place?[196] Audas *et al.* (1997) believes that teams have a tendency to eventually improve after a streak of losses because a team simply does not want to lose forever. But the Edmonton Oilers have not shown an improvement in decades.[197] In the period from 2008/09 and 2018/19, the Edmonton Oilers made changes in management ranks, but a change in strategy was still nowhere to be seen. After the 2018/19 season, they hired Ken Holland as the new general manager and finally attempted to actually change the mindset of the franchise's culture from losing to winning. Whether that streak of winning games in the 2019/20 season will last has not been put to the test and we will probably have to see if the Edmonton Oilers culture will transform away from the mindset of losing.[198]

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[195] Willis, J. (2014, December 12). *Why a Losing Culture Still Plagues the Edmonton Oilers* . Retrieved April 2020, from Bleacher Report : https://bleacherreport.com/articles/2298310-why-a-losing-culture-still-plagues-the-edmonton-oilers

[196] Allen, W. D., & Chadwick, C. (2012). Performance, Expectations, and Managerial Dismissal: Evidence From the National Football League . *Journal of Sport Economics*(13, No. 4), 337-363; McGuire, L. (2016, June 1). *Eric Belanger Calls The Oilers A "Graveyard for Players"*. Retrieved February 2020, from PDL Hockey News: http://thecomeback.com/puckdrunklove/2016-articles/eric-belanger-calls-the-oilers-a-graveyard-for-players.html

[197] Audas, R., Dobson, S., & Goddard, J. (1997). Team Performance and Managerial Change in the English Football League. *Economic Affairs, 17*, 30-26.

[198] Rosen, D. (2019, October 13). *Oilers 'culture change' big reason for historic start*. Retrieved April 2020, from NHL: https://www.nhl.com/news/edmonton-oilers-embracing-culture-change/c-310060706

## *Managerial Turnover*

In eleven seasons, the Edmonton Oilers experienced their lowest team roster turnover in the 2012/13 season, but the managerial turnover was higher than ever. Just from 2008/09 until the 2012/13 season the team had three different general managers and four different coaches. In the end of the 2011/12 season, the management fired Tom Renney, replacing him with interim coach, Ralph Krueger. Dallas Eakins who was an associate coach working under Krueger convinced general management that he would serve the team better as coach since he had valuable experience with young teams, causing Krueger to be fired as a coach following the 2012/13 season. Dallas Eakin's behavior of going behind his superiors back caused front office issues, raising the question if Eakins had not been trying to sabotage Krueger's strategy the entire time to be promote to a higher position. However, after he was able to convince the current general manager Craig MacTavish to hire him as the new coach, just 113 games later in the middle of the 2014/15 season, Dallas Eakins was fired and replaced by interim coach Todd Nelson.[199] Having several managerial turnovers and front office drama certainly causes frustration and confusion among player. One of Edmonton Oilers top players Connor McDavid stated in an interview of April 2019 after they were eliminated in the 2019 playoffs how difficult these managerial changes can be for the team. *ESPN* reporter Greg Wyshynski (2019) quoted Connor McDavid directly,

[199] HockeyReference. (2020). *2014-15 Edmonton Oilers Roster and Statistics* . Retrieved April 2020, from Hockey Reference: https://www.hockey-reference.com/teams/EDM/2015.html

> "It's been an insane season -- coaching change, GM change, good times and bad times. It's been a roller coaster, it's been emotionally challenging, it's been hard mentally to kind of keep on going. But we were always kind of right there. We were close and then we'd drift away. It's frustrating. We want to play in the playoffs as a team. I personally want to play in the playoffs. I'm not happy about it. It's going to be a long summer."[200]

While this is a statement that relates to the 2018/19 season, one can imagine that previous Edmonton Oiler players have felt similar when managerial turnover occurred that was shaking up the team and did not seem to go anywhere but instead just resulted in Groundhog Day like experience. The difference in the 2018/19 season compared to seasons like the 2012/13 season, was that the Edmonton Oilers actually managed to make it to the playoff's while they failed to do so since 2006 when they lost against the Carolina Hurricanes in the final round of the playoffs, just missing to win the cup. However, researcher Staw (1980) points out that turnover allows an organization to adapt to the environment as it forces a new reallocation of organizational resources.[201] Further, Curtis *et al.* (1986) research is suggesting that teams with a win percentage above 50% will experience a decline in performance following managerial change while teams with a win percentage below 50% are will experience an increase in performance following

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[200] Wyshynski, G. (2019, April 6). *Does Connor McDavid really want out of Edmonton?* Retrieved April 2020, from ESPN: https://www.espn.com/nhl/story/_/id/26449511/does-connor-mcdavid-really-want-edmonton

[201] Staw, B. (1980). The Consequences of Turnover. *Journal of Occupational Behavior (Pre-1986), 1 (4)* , 253-273.

managerial change. In the case of the Edmonton Oilers, the overall turnover in eleven seasons as well as the turnover in 2012/13 alone does not seem to show any improvement in the team's performance. It is however possible that Curtis *et al.* (1986) argument that the positive effect of the managerial change might not be right away observable as incoming managers need time to establish their strategy for the team.[202] Here it may be the case that there was not enough time for an adjustment as the ownership frequently exchanged general managers and head coaches causing a lack of coherence.

## *Mismanagement*

### Bad Drafts

With the Edmonton Oilers having failed to make the playoffs for over a decade the franchise had amassed nearly half a dozen first-overall draft picks.[203] In this unique case there is something that appears to be a sunk cost or loss aversion. They collected a bunch of first round picks and players who were standouts at lower league levels that have not lived up to the expectations but did not cut their losses and trade them after they had only been posting mediocre type of numbers. The team's first overall picks and top ten draft picks are recorded in **Table 1.14** in the appendix. For instance, Sam Gagner (C) who was the sixth overall pick in the 2007 NHL Draft, never reached 20+ goals or 50+ points during the seven seasons (2007/08 to 2013/14) in which he has played for the team. Since then he has been playing here and there as a journeyman, playing one season each for the Arizona Coyotes, the Philadelphia Flyers, Columbus Blue Jackets, and

[202] Curtis, J. E., Loy, J. W., & Hillen, J. M. (1986). Managerial Succession and Team Effectiveness: A Case Study of Japanese Professional Baseball. *Int. Rev. f. Soc. of Sport21 , 21, No.4*, 339-351.
[203] HockeyDB. (2020). *Edmonton Oilers Draft History*. Retrieved January 2020, from Hockey DB: https://www.hockeydb.com/ihdb/draft/teams/dr00005632.html

Vancouver Canucks, before returning to the Edmonton Oilers in the 2018/19 season at the age of 29.[204] Not once during any of those seasons did he surpass the scoring highs he achieved during his time with the Edmonton Oilers. In fact, he has shown a further decline in his performance, scoring only six goals and 13 points in the 2018/19 season. The Vancouver Canucks traded Gagner in February of 2019 in exchange for Ryan Spooner (C). Spooner had been acquired by Edmonton in a player for player swap with the New York Rangers for the underachieving Ryan Strome. Strome had been a high draft pick by the Islanders, being chosen fifth overall, and while he had scored 50 points in his sophomore season with Long Island he had been considered as a player who would not reach his potential. With Edmonton he had scored 34 points in his first full season but in his second, (2018/19) he was struggling to find the score sheet, only having one goal and one assist in 18 games. Spooner had been a prolific scorer for the Rangers in the 2018 season following his trade deadline acquisition, scoring 16 points in twenty games and earning a sizable contract by the Rangers front office staff, but was struggling to even stay in the lineup the following season with a new head coach. Edmonton's hope was that the new location could restart Spooner but in 25 games with the Oilers he still only put up two goals and three points. Strome on the other hand went on a tear, scoring 18 goals for the Rangers that first year and is currently third on the Rangers scoring list, finding chemistry with Artemi Panarin. He has 49 points in 57 games thus far. Trading Spooner

[204] HockeyReference. (2020). *Sam Gagner* . Retrieved January 2020, from Hockey Reference: https://www.hockey-reference.com/players/g/gagnesa01.html

for Sam Gagner was a desperate way to minimize the pain of that transaction.[205] Both player's statistic results from the past seasons are declining.

Taylor Hall is the opposite of Sam Gagner. In three of his six seasons (2010/11 to 2015/16) he scored over 50 points and over 25 goals. He was young and needed more time to develop but instead of keeping him they decided to trade him to the NJD in exchange for defensemen Adam Larsson. Edmonton's decision to trade Hall became their loss and turned out to be NJD's gain. He scored 39 goals and finished with 93 points in the 2017/18 season, carrying the team into the playoffs and winning the Hart Trophy as league most valuable player (MVP).[206] Jordan Eberle (RW) was drafted by EDM in 2008 as a first-round pick. While his numbers are hardly pedestrian, he was viewed as having plateaued below what had been viewed as his potential. Only in the 2011/12 season did he score more than 34 goals and finished with 76 points. He played for the team from the 2010/11 season until 2016/17 when he was traded to the New York Islanders (NYI). The management decided to trade him after a poor performance in the playoffs in exchange for the earlier mentioned NYI's center player Ryan Strome. What exactly the management considers under poor performance is unclear and is subjective since that can mean different things for different teams and managers. Eberle's performance with the NYI has been okay and it's questionable if EDM made the right choice. NHL player Ryan Nugent-Hopkins (C) was awarded WHL Rookie of the year 2010 and was the first overall draft pick in 2011. He has been playing for EDM for over eight years and has

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[205] HockeyDB. (2020). *Ryan Strome*. Retrieved February 2020, from Hockey DB: https://www.hockeydb.com/ihdb/stats/pdisplay.php?pid=122942&encode=TRUE

[206] HockeyReference. (2020). *Taylor Hall*. Retrieved January 2020, from Hockey Reference: https://www.hockey-reference.com/players/h/hallta02.html

only scored over 20 goals and above 60 points three times. Nugent-Hopkins is a decent player and EDM should hold on to him.[207] Nail Yakupov is another first overall pick (2012) who did not quite lift up to the team expectations. During his four years at EDM and his total of six NHL seasons, he has scored below 20 goals a season and finished always below 35 points per season.[208] Yakupov is considered by many to be one of the worst first overall draft busts in the history of the NHL.[209] Teams need to have an avenue in which they fill the void caused by turnover and losing teams have the benefit of draft positioning to help them rebuild. The Oilers, with consistent losing seasons were given repeated high draft picks. Some teams in the NHL have never had a 1st overall draft pick. Others have used those lottery wins to obtain marquee players, such as Steven Stamkos or Vincent Lecavelier in Tampa Bay. The Pittsburg penguins used a series of top 3 draft picks to craft a roster that included Sidney Crosby, Evgeny Malkin and Marc Andre Fluery. They have won three championships. The Oilers had three 1st overall picks in a row and a 4th in 2015. And they were still losing.

## *Location*

Similar to the Buffalo Sabres, the Edmonton Oilers suffer from the hardship of signing free agency players due to their locations. While only players who have an outstanding resume have leverage to demand a no-movement or no-trade clause with their current teams, NHL player agents  reported in 2015 that the Edmonton Oilers are

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[207] HockeyReference. (2020). *Ryan Nugent-Hopkins*. Retrieved January 2020, from Hockey Reference: https://www.hockey-reference.com/players/n/nugenry01.html

[208] After the 2017/18 season he played in the KHL in Russia. HockeyReference. (2020). *Nail Yakupov*. Retrieved February 2020, from Hockey Reference: https://www.hockey-reference.com/players/y/yakupna01.html

[209] Larkin, M. (2019, December 30). *The Top 10 NHL Draft Busts of the Decade*. Retrieved April 2020, from The Hockey News: https://thehockeynews.com/news/article/the-top-10-nhl-draft-busts-of-the-decade

one of the top five teams that are listed on the no-trade list of numerous NHL players.[210] In fact, the team was considered least favorite destination for players based on the report of ten NHL player agents.[211] *ESPN* reporter Craig Custance (2015) stated,

> "The Oilers have three things working against them: climate, lack of success and being a Canadian team, which is one common characteristic on these lists. Given the choice, agents said, most players don't necessarily want to play to play in Canada."[212]

While many know the phrase 'past success does not ensure future success', many people in our society still make their decisions based on past successes. Specifically, Bill Gates said,

> "Success is a lousy teacher, it seduces smart people into thinking they can't lose." Don't stop hustling. Don't stop learning. Past success doesn't ensure future success."[213]

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[210] Wyshynski, G. (2015, February 15). *No one wants to play in Edmonton and Winnipeg according to agents*. Retrieved February 2020, from Yahoo! Sports: https://sports.yahoo.com/blogs/nhl-puck-daddy/no-one-wants-to-play-in-edmonton--winnipeg-according-to-agents-182227244.html

[211] Staples, D. (2015, February 18). *Edmonton Oilers is least favourite NHL destination for players, ESPN reports*. Retrieved April 2020, from Edmonton Journal: https://edmontonjournal.com/sports/hockey/nhl/cult-of-hockey/edmonton-oilers-the-team-nhl-players-least-want-to-join/

[212] Staples, D. (2015, February 18). *Edmonton Oilers is least favourite NHL destination for players, ESPN reports*. Retrieved April 2020, from Edmonton Journal: https://edmontonjournal.com/sports/hockey/nhl/cult-of-hockey/edmonton-oilers-the-team-nhl-players-least-want-to-join/; Wyshynski, G. (2015, February 15). *No one wants to play in Edmonton and Winnipeg according to agents*. Retrieved February 2020, from Yahoo! Sports: https://sports.yahoo.com/blogs/nhl-puck-daddy/no-one-wants-to-play-in-edmonton--winnipeg-according-to-agents-182227244.html; Traikos, M. (2016, April 11). *No Canada: Seven reasons why it's tougher to play for Canadian teams than American ones*. Retrieved April 2020, from National. Post: https://nationalpost.com/sports/hockey/nhl/no-canada-seven-reasons-why-its-tougher-to-play-for-canadian-teams-than-american-ones

[213] Feiereisen, S. (2018, June 13). *16 top money tips from some of the world's most successful people*. Retrieved April 2020, from Buisness Insider : https://www.businessinsider.com/money-tips-from-worlds-most-successful-people-2018-6

Hedge funds, for example, advertise with their past returns to attract investors, and hockey teams use it as an avertissement fans and hockey players they hope to attract. But the reality looks quite different. The last Canadian hockey franchise to win a Stanley Cup championship were the Montreal Canadiens against the Los Angeles Kings, but that was in 1993. For over 26 years none of the Canadian teams were successful enough to win a cup, making Canada as a location for NHL hockey players highly unattractive.[214] Yet, young players who are being drafted would give anything to play professional hockey. But a hockey team also needs experienced veteran players who can lead the young players and teach them. While many Canadian teams have the same locational problem, some Canadian teams like for example the Winnipeg Jets have at least a record of winning and making it into the playoffs. The Edmonton Oilers, however, have not been to the playoffs since 2006, making it even harder for the franchise to attract free agency players or hold current players for longer periods of time. Having several first-round picks and having the ability to be one of the first people to pick new hockey talent does not mean that they will stay. Retaining players is as important as adding new talent for the future of the team.

Another disadvantage are the Canadian income taxation rates. NHL players, no matter if they play on an American team for a Canadian team, get paid in US dollars, causing a greater disadvantage for players at a Canadian franchise as they face greater

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[214] AssociatedPress. (2019, April 7). *No Canada: Nation's Stanley Cup drought approaches 26 years*. Retrieved April 2020, from USA Today: https://www.usatoday.com/story/sports/nhl/2019/04/07/no-canada-nations-stanley-cup-drought-approaches-26-years/39313289/; Vella, E. (2018, May 21). *Canada's Stanley Cup drought reaches 25 years after Jets defeated*. Retrieved April 2020, from Global News: https://globalnews.ca/news/4222365/canadian-nhl-hockey-teams-stanley-cup/

personal income taxes due to the currency conversion between US dollar and CA dollar.[215] While players who play for NHL franchise that is located in the United States may also pay high income taxes, NHL player who play for a Canadian franchise face an additional issue. Since NHL players are getting paid in USD, players in Canada still have to pay Canadian taxes and not American which could cause a currency conversion issue and may decrease a player's income drastically. A research finding by Jeff Bowes who is Research Director for the Canadian Taxpayer Federation (2014) is suggesting that NHL players who have the leverage of demanding no-trade or no-movement clauses will do so to limit the locations that they can be traded to which may make big cut in their salary.[216] That may be the reasons why several player agents stated that Canadian teams. are on the top of the list when it comes to no-trade or no-movement clauses as the currency exchange rate may mean for them a greater loss of their paycheck due to being paid in USD but paying income taxes in CAD.

Over the years, the Edmonton Oilers had several players who wanted to leave due to the franchise's location, the lack of success, and the tension between players and management. For example, Jesse Puljujarvi demanded a trade and decided to simply not return after the summer break following the 2018/19 season. While the team still owns the rights to Puljujarvi in the NHL, the player has decided to stay in Finland and play in the Karpat ice hockey league rather than return to Canada and the NHL until his contract

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[215] AmericansForTaxReform. (2014, November 17). *Study: 57% of NHL Free Agents Went to Teams with Lower Taxes*. Retrieved April 2020, from American for Tax Reform: https://www.atr.org/study-57-nhl-free-agents-went-teams-lower-taxes?page=6

[216] Bowes, J. (2014). *Home Ice Tax Disadvantage? How personal income taxes impact the NHL players, teams and the salary cap.* Canadian Taxpayer Federation. Canadian Taxpayer Federation.

is moved.[217] Defenseman and veteran player ten years earlier Sheldon Souray had been asking to be traded away from the Edmonton Oilers to another franchise location for almost 18 months as the situation between him and the management escalated in September of 2010. Souray suffered a shoulder injury in the 2007 training camp and later on, in the third game of the 2009/10 season, he suffered from a concussion after a hit from Calgary Flames player Jarome Ignila. After that he never played another full season, and in April of 2010, Souray publicly criticized the management, stating in an interview,

> "It's not a player thing. It's not a fans thing or a city thing. It's a management thing. They've given up on me, and it's a two-way street. I don't talk to anyone (in management) and I don't expect to when I check out of here, I don't really need to talk to them. There isn't anything to say."[218]

Management ranks change, but people's first impression when they read such headlines will always stick in their minds and add a counter argument to a players list on why not to decide to sign with the Edmonton Oilers. Another example of a player that may demand to be traded down the road might be Connor McDavid. As stated in the mismanagement section, McDavid has mentioned his frustration about the franchise after

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[217] Clipperton, J. (2019, August 28). *Oiler's Draisaitlon Jesse Puljujarvi: 'It seems like he doesn't want to be on our team'*. Retrieved April 2020, from CBC: https://www.cbc.ca/sports/hockey/nhl/oilers-draisaitl-puljujarvi-1.5262992 ; HockeyDB. (2020). *Edmonton Oilers Draft History*. Retrieved January 2020, from Hockey DB: https://www.hockeydb.com/ihdb/draft/teams/dr00005632.html

[218] Staples, D. (2011, July 12). *Souray on Edmonton: "It guess it's just not a place that's attractive to go..."*. Retrieved April 2020, from Edmonton Journal : https://edmontonjournal.com/sports/hockey/nhl/cult-of-hockey/souray-on-edmonton-it-guess-its-just-not-a-place-thats-attractive-to-go/ ; Spector, M. (2010, April 12). *Exlusive: Sheldon Souray asks to be traded*. Retrieved April 2020, from Sports Net: https://www.sportsnet.ca/hockey/nhl/souray-request/

they were eliminated from the 2019 playoffs.[219] McDavid was a 1st overall draft choice, and the very player that multiple teams, including the Buffalo Sabres as mentioned earlier, were incentivized to tank a season in order for a chance to draft. At 23 years old, McDavid already has four All-star appearances and five individual trophies' including the Hart Trophy for being the NHL's MVP. McDavid is a generational talent and one that Edmonton could not replace if he did depart.

Another reason why players do not prefer to play for a Canadian team like the Edmonton Oilers are the countries taxes. While players who play for NHL franchise that is located in the United States may also pay high income taxes, NHL player who play for a Canadian franchise face an additional issue. Since NHL players are getting paid in USD, players in Canada still have to pay Canadian taxes and not American which could cause a currency conversion issue and may decrease a player's income drastically. A research finding by Jeff Bowes who is Research Director for the Canadian Taxpayer Federation (2014) is suggesting that NHL players who have the leverage of demanding no-trade or no-movement clauses will do so to limit the locations that they can be traded to which may make big cut in their salary.[220] That may be the reasons why several player agents stated that Canadian teams. are on the top of the list when it comes to no-trade or no-movement clauses as the currency exchange rate may mean for them a greater loss of their paycheck due to being paid in USD but paying income taxes in CAD.

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[219] Wyshynski, G. (2019, April 6). *Does Connor McDavid really want out of Edmonton?* Retrieved April 2020, from ESPN: https://www.espn.com/nhl/story/_/id/26449511/does-connor-mcdavid-really-want-edmonton

[220] Bowes, J. (2014). *Home Ice Tax Disadvantage? How personal income taxes impact the NHL players, teams and the salary cap.* Canadian Taxpayer Federation. Canadian Taxpayer Federation.

### *Summary*

Regardless, of the fact that the 2012/13 season was affected by a labor dispute between the NHL and the NHLPA which may have caused lower levels of turnover as players are less moved between franchise and minor leagues, the Edmonton Oilers have had an organizational culture issue for quite some time. Whereas winning can build confidence and become a sort of pedigree, failure can seep into the blood. Edmonton had a storied history of championships with the greatest players ever to play the game in the 1980s, and that legacy makes the futility of the Oilers in the cap era even more shocking. Past success does not ensure contemporary achievement. Great players do not necessarily equate to great managers. The team has lacked a consistent unified vision and the management, despite the changing nameplates on the front office doors, has attempted to resupply the roster through the draft only. They have not come up with any concrete strategy other than that and throw each young prospect into the NHL with no more preparation then good wishes. The Edmonton Oilers have replaced a legacy of winning with a culture of failure.

## Case Studies Findings

Every NHL team experiences some degree of turnover, with the league average during the period sampled averaging roughly forty percent. Like the "natural" unemployment rate, there appears to be a normal churn or movement of players throughout the league. This is perhaps unsurprising, if not to be expected; every season,

new players are drafted, free agents test the market, and veteran players retire or seek to ply their trade in another league.

Nevertheless, there is a clear – albeit small – negative correlation between turnover and win percentage. Teams with higher turnover, on average, performed poorer during the regular season. In fact, with only a few exceptions (i.e., 2014/15 Chicago Blackhawks, 2015/16 Pittsburgh Penguins), every Stanley Cup championship team during the eleven seasons examined had a rate of player turnover below the league average (see **Table 8**).

**Table 8: Stanley Cup Winners vs. League Averages**

| Stanley Cup Winner | Year | Turnover % | League Avg. Turnover % |
|---|---|---|---|
| Pittsburg Penguins | 2008/09 | 25.00% | 42.00% |
| Chicago Blackhawks | 2009/10 | 29.03% | 42.42% |
| Boston Bruins | 2010/11 | 35.48% | 41.37% |
| Los Angeles Kings | 2011/12 | 27.59% | 41.59% |
| Chicago Blackhawks | 2012/13 | 21.88% | 34.74% |
| Los Angeles Kings | 2013/14 | 32.14% | 40.78% |
| Chicago Blackhawks | 2014/15 | 40.54% | 39.74% |
| Pittsburg Penguins | 2015/16 | 51.28% | 42.91% |
| Pittsburg Penguins | 2016/17 | 28.21% | 38.76% |
| Washington Capitals | 2017/18 | 35.48% | 38.00% |
| St. Louis Blues | 2018/19 | 42.42% | 49.92% |

Why is player turnover negatively associated with winning? Conventional wisdom – and the positive view of turnover – suggests teams should shakeup moribund rosters or make trades to bolster a team's chances of making the playoffs. Equally puzzling is how teams with similar rates of turnover went on to finish the season with remarkably different records; why doesn't turnover affect teams equally?

Although the case studies presented in this thesis cannot offer any clear or definitive answers, it does appear that team management and leadership is an important factor in moderating the effect of player turnover. Teams with similar rates of turnover such as DET, TBL, and EDM that went on to post very different records also tended to vary in terms of managerial experience and organizational stability. Teams with experienced general managers (DET, TBL) performed better than those with inexperienced ones (e.g., TBL, CGY, EDM), as did teams with more stability and cohesion between ownership, team management, and the head coach (e.g., DET vs. TBL). Teams with higher turnover also appeared to be in a state of organizational chaos (e.g., EDM) or transition due to change in team ownership and/or front office management (e.g., TBL).

There is also some anecdotal evidence that location may affect player turnover. Buffalo, for example, witnessed a steady outmigration of key players in the 1990s and early 2000s including Hall of Famer goaltender Hasek as well as captains Peca, Drury, and Briere. News articles, interviews with agents, and player polls indicate least desired places to play tend to be located in smaller markets and/or further north. Yet, players still play in BUF and the NHL has continued to expand into smaller but growing markets in recent decades (e.g., ARZ, WPG, CAR, FLA), casting doubt on this hypothesis.

While the research presented here is at best correlational and anecdotal, there are perhaps a few insights or "best practices" for managing player turnover in the NHL. First, while there will always be some turnover as new players are drafted, traded, leave or are signed as free agents, retire, or opt to play in another league, team owners and general

managers should closely monitor turnover rates as the findings presented here indicate that NHL teams with higher turnover rates tend, on average, to end the season with lower win percentages

More specifically, given the regular rate of player turnover – the league average was roughly forty percent during the eleven seasons studied – managers should actively manage turnover to ensure that it is aligned with the franchise's immediate and long-term plans. In this study, teams with comparatively high levels of turnover tended to either be in the process of rebuilding or experiencing major organizational changes in leadership, while teams with better records made fewer changes to their roster, suggesting stability is indicative or at least associated with better team performance in the regular season. Teams with inexperienced coaches or general managers also tended to make more changes to their team's roster than teams run by coaches or general managers with previous experience.

A key mistake that some NHL teams appear to make is conflating success and experience as a player with success and experience in coaching or management. Each of the general managers and coaches of the teams with the highest win percentages included in this study had several years of previous experience coaching or managing teams in the NHL or AHL (see **Table 1.15** in the appendix). Granted, coaches and general managers have to start somewhere, but owners may be taking an unnecessary risk when they expect someone with no previous experience to start at the top level of professional hockey rather than hiring or promoting someone with a proven track record.

# Discussion

The original intent of this thesis was to understand the effect of player turnover on the performance of teams in the NHL; specifically, is player turnover associated with better or worse team outcomes? The literature offers two contrasting views of the possible effect of turnover on organizations; one emphasizes the negative consequences of turnover for organizations in the form of lost human capital and reduced productivity, while the other notes the potential gains of turnover through increased efficiency and the acquisition of better workers.

While the league average rate of player turnover may seem somewhat high at approximately forty percent – nearly half the team – it is roughly equivalent to the overall average turnover rate in the U.S. as well as the rates observed in other studies of professional sports.[221] Every year, new players are drafted while existing players are traded, reassigned to the AHL, signed as free agents, retire, are bought out, or leave to play in another league.

The correlational analysis presented in this thesis finds a weak to moderate negative association ($r = -0.31$) between player turnover and team performance in the NHL over the eleven seasons sampled. Specifically, NHL teams with higher rates of player turnover tended, on average, to end the regular season with lower win percentages compared to teams with lower rates of player turnover. Similarly, Stanley Cup championship teams over the same eleven-year period also tended to have rates of player

[221] BLS. (2020, March 17). *Table. 16. Annual total seperation rates by industryand region, not seasonally adjusted*. Retrieved April 2020, from BLS: https://www.bls.gov/news.release/jolts.t16.htm; Morse, A. L., Shapio, S. L., McEvoy, C. D., & Rascher, D. A. (2008, February ). The Effects of Roster Turnover on Demand in the National Basketball Association. *International Journal of Sport Finance , 3, No. 1*, 8-18.

turnover below the league average (see **Table 8** in the Case Study Findings section), further suggesting higher player turnover is associated with poorer team performance.

Does poorer team performance result in increased turnover or vice versa? Lead-lag correlation analysis suggests both possibilities (see **Table 3**, **Table 4**, **Table 5** of the Summary Statistics section). Teams that perform poorly may prompt team management to make significant changes in personnel – as in the case of the TBL (2008/09) - while those managing teams with high win percentages may see little reason to make changes, exemplified by DET (2008/09, 2014/15) and other TBL (2015/16, 2018/19). Also notable that the magnitude between turnover and win percentage $(t-1, t-2)$ and vice versa diminishes significantly overtime (see **Table 4**, **Table 5** of the Summary Statistics Section). One would expect that an increase in turnover would impact a team's win percentage but over time the effect of the new players dies out as the coherence and social connection between players builds up and betters the learning curve. The considerable variation in player turnover and win percentage across the NHL teams and seasons sampled raised an obvious question: why do teams with similar rates of turnover end up with remarkably different outcomes? In short, why doesn't turnover appear to affect teams equally? The case study analysis of a subsample of five teams with comparatively high or low rates of player turnover presented here suggests that team management may be a mediating factor. After all, every team experienced some degree of turnover with a league average rate of forty percent. The case study examples presented indicate that teams with inexperienced general managers and/or head coaches tended to have higher rates of turnover and poorer team performance (e.g., TBL, BUF).

Teams experiencing significant changes in ownership or front office personnel also tended to have poorer regular season records, suggesting an organization in transition or "rebuilding". Conversely, the four best performing teams in terms of regular season win percentage also tended to have comparatively low rates of player turnover and relative stability in ownership and front office personnel. While location may have influenced the turnover rate in some franchises, the evidence is anecdotal at best and fails to explain why some teams located in smaller markets or less densely populated regions can and do field competitive teams that include Stanley Cup champions (e.g., CAR, EDM, STL).

In regard to the existing literature, the findings presented suggest that while March and Simon's model of organizations may accurately describe certain aspects of employee turnover (e.g., examples), it underappreciates the effect of rules in a regulated market such as the NHL. Compared to the overall U.S. economy, the NHL is a highly regulated environment in which the NHLPA acts as a union for all league players (vs.~10% of U.S. workers who belong to a union) and the CBA sets the rules for the league and the participating NHL franchises, limiting the not only the number of franchises but also team roster sizes and salaries via salary cap.

Additionally, at the root of March and Simon's tree-like model of employee turnover is the employee, implying that the employee is a central factor in understanding turnover.[222] Yet, in the NHL, it is team ownership and management – through the CBA and league salary cap – that largely initiates and determines turnover. Team management decides who to draft, resign, place on waivers, trade, demote to the AHL, or buy out.

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[222] March, J.G., & Simon, H.A. 1958. "*Organizations."* Oxford England: Wiley, p.99. See the model here on p.8.

Until players become eligible for free agency – insert description if/how become eligible – players are akin to assets that can be used or exchanged according to the wishes of team ownership and management.

While players who eventually become free agents may exert a degree of influence in where they choose to play, the salary cap imposes constraints and creates disincentives for players to join certain teams (e.g., when a player joining a given team would place the team over the salary cap or require the player to agree to a significant pay cut). And only a small minority of highly skilled players are able to negotiate special contractual agreements (e.g., no-trade or no-movement clauses) that provide them significant influence over their movement.

However, March and Simon's respective theories on organizations and decision-making did seem quite relevant when trying to understand some of the decisions owners and team management made in hindsight. For instance, the garbage can model arguably applies to the Edmonton Oilers. The high managerial turnover had the consequence that different problems and solutions were dumped in the garbage can without actually solving a clear, discrete problem since each incoming GM or head coach saw different opportunities but did not get the time to solve any of them because they were quickly replaced This repeated cycle of quick managerial hirings and firings resulted in organizational chaos that encouraged short-term thinking and precluded any sort of long-term strategic planning. Simon's idea of "bounded rationality" is also applicable to NHL, as GM's do not necessarily know if their recently drafted players will meet expectations – many, if not most, first round NHL draft picks end up busts – or when the right moment

is to trade or retain a veteran player. In some cases, GM's do not know what would have been a better move for the team until after the fact when the damage is already done. As a human being, a GM does not necessarily know all the possible outcomes of their decisions nor do they have the time or resources to go through all the options.

More generally, the findings presented here suggest providing mixed support for various theories regarding employee turnover. For example, the negative correlation seems to be in line with the majority of the literature that emphasizes the negative consequences turnover has for an organization's productivity. Moreover, specific trades may reflect intended positive turnover that was intended to improve a team's performance, but generally the findings presented here suggest that turnover is associated with adverse outcomes for the team. Interestingly, the theory managerial turnover may lead to an improvement of a team's performance only held true in some cases (e.g., TBL after hiring Yzerman). However, for other teams that was not the case (e.g., EDM, BUF).

## Limitations

While this study yielded some insights into the relationship between player turnover and team performance in the NHL, there were also some associated limitations in terms of the data, measurements, and methodologies applied.

Explicitly, I was able to collect basic team roster data (e.g., age, player position, games played, wins, losses, goals, assists, points… ), but there is a limited ability to access advanced NHL statistics (e.g., Corsi, Fenwick, PDO, Zone Starts), and get insights to the conditions and clauses (e.g., no-trade clause, no-movement clause, bonus

conditions) of NHL player contracts.[223] Since I did not access to these proprietary data that may offer a better approximation of a team's performance. In my case study analysis, I am can only refer back to data inputs and statement that have been made to the media that are publicly available. Much of the internal processes or events in an NHL franchise may have not been public and can therefore not be considered.

The measurement and definition of turnover and. productivity is another limitation of the research since a change in the definition or measurement of both variables (i.e., turnover, productivity) may lead to different results. In my analysis I only focus on the player-driven form of turnover meaning that most changes that have been done to a team are a product of decisions by the general manager or the owner of the team. Turnover can be measured in several ways such as the number or trades, movements between leagues (e.g., AHL and NHL), managerial turnover (e.g., GM, head coaches), player turnover. Similarly, team performance can be measured in several ways including making the playoffs (yes/no), attendance or ticket sales or ratio of goals for or against could show a different set of results. In this study, I tried to find a measure of turnover and performance to show a potential effect of team turnover on team performance, knowing that the measure would only show one facet of what influences team performance.

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[223] Corsi is a proxy to measure for offensive zone possession, Fenwick is a variation of Corsi that excludes all blocked shots for and against, PDO is the frequency at which a puck tend to go in the net at both end of the ice at a five-to-five strength, Zone starts is a factor that influences Corsi or in other words the ratio between offensive zone faceoffs to defensive zone faceoffs at even strength., Wilson, K. (2014, June 10). *Wilson: Don't know Corsi? Here's a handy-dany primer to advanced stats*. Retrieved April 2020, from The Calgary Herald: http://www.calgaryherald.com/Sports/Wilson+know+Corsi+Here+handy+dandy+primer+advanced+stats/10265096/story.html

Additionally, the timeframe of the research is also limited in terms of the number of years that could be included in the sample since earlier years involved the addition of numerous expansion teams with expansion drafts that would have artificially increased the player turnover throughout the league. Over the past several decades, when the NHL has created new franchises, in order to ensure that they are competitive from the very beginning the league has used an expansion draft to reallocate players from existing teams to the new franchise. Although the rules have slightly changed from year to year, in general existing teams are allowed to protect or retain a certain number of existing players, leaving a portion of the roster eligible for selection in the expansion draft. While adding more years to the current sample would increase the overall sample size and possible teams for case study analysis,, the expansion of the timeframe would also add several confounding factors (e.g., expansion drafts, seasons prior to introduction of salary cap, reorganization of divisions and conferences) that would make any comparative analysis of turnover akin to comparing apples and oranges.

Lastly, the NHL specific factor may limit the generalizability to other leagues and professional sports. For example, each different league may have different CBA's or different structures that change the way turnover can occur within these leagues. Besides, leagues outside the country may also have different cultural norms under which their professional sport leagues may operate (e.g., Japan).[224]

[224] Curtis, J. E., Loy, J. W., & Hillen, J. M. (1986). Managerial Succession and Team Effectiveness: A Case Study of Japanese Professional Baseball. *Int. Rev. f. Soc. of Sport21 , 21, No.4*, 339-351.

## Future Research

The findings and limitations of the research presented above suggest three related but distinct paths for future research. One obvious task would be to replicate or reproduce the findings presented here. There are arguably several different ways one could define and measure productivity and player turnover; do the findings presented here reflect a valid association between the variables or is it merely a spurious artifact of how the variables were operationalized and measured?

A second avenue for future research would be to examine and compare the magnitude of the effect of player turnover against turnover in coaching, the front office, and team ownership. Since my findings suggest that management plays a vital role in studying turnover and its effects on an organization's or a team's performance, future research should focus more on the management of an organization and its role in initiating and managing turnover. For instance, one could compare the effect of player turnover with front office turnover (e.g., head coach, GM, owners) to determine which one matters more and why. For example, the Edmonton Oilers' experienced during the research timeframe numerous head coach, general management and owners potentially causing frustration and confusion among players of the team. To get a better picture it would be helpful to expand the turnover examination beyond the player of a team. The hierarchy in companies across various industry looks often similar to what can observe in an NHL franchise. Doing a comparison of effect of player turnover on team performance versus nonplayer turnover (e.g. coaches, front office) through a regression analysis, to address who has the greater impact (positive or negative, or no effect) on team

performance is also an interesting question that might help to give an even deeper insight into the turnover and team performance research.

Another possible avenue for future research concerns the effect of players associations and collect bargaining agreements on within and across professional sports leagues. The usage of a case study method bares several advantages since it allows us to get some insight, detail, and depth into the issue of turnover and their effects on team performance. While the case study findings may not be applicable to in manufacturing or banking industries they may be applied or used as a hypothesis test in other leagues or sports. For example, do other professional hockey leagues (e.g., DEL, KHL…) show similar effects. If these leagues also have a union and a CBA, I would expect to see similar outcomes. If that is not the case than it would be worthwhile to compare them with the NHL to see the presence or absence that is associated with different outcomes. Lastly, considering other sports leagues (e.g., NBA, NFL, MLB) could also be useful, to see of these leagues show a similar pattern or even how the pattern changes if there is no hard salary cap. I would expect to see similar patterns in other leagues if the market structures are similar to the NHL. Often professional sports leagues tend to emulate on each other. DiMaggio and Powell (1983) refer to that practice as "institutional isomorphism" which describes how organizations competing in similar market environments tend to adopt similar practices, forms and strategies.[225] In the United States, leagues like the NFL, MLB, NBA and NHL look at one another for insights and best practices that can be used in their leagues to solve problems. It would be interesting to

[225] DiMaggio, P. T., & Powell, W. W. (1983). The Iron Cage Revisted: Institutional Isomorphism and Collective Rationalty in Organizational Fields. *American Sociology Review, 48, No. 2*, 147-160.

see if other professional leagues in other countries show similar outcomes or effects of turnover on team performance like the NHL.

## Conclusion

Being a successful National Hockey League team is all about organizational success and teamwork, meaning it is necessary to have the right people, in the right places, at the right time. Yet, the movement of players (turnover) is directly linked to the managerial ranks that deicide who will be hired, fired and how the players will be used in the team's efforts. The majority of the literature that I reviewed focuses on specific factors that influence how turnover will affect a team's performance. Researchers have conducted theoretical and empirical orientated studies; however, my research adds a much-needed qualitative analysis to the conversation on the effects of turnover on team performance. Using statistics are good at answering the *what* and *how*, but a qualitative method like the case study analysis approach is better when trying to answer the *why* and *how*. Additionally, this research shows that theories and concepts from both an economics and an organizational standpoint can be used in answering sports-related research questions like: what is the effect of turnover on team performance? However, after conducting the research I observed that this type of application also bares some important limitations. For example, the NHL as well as other sport leagues within the United States are somewhat closer to monopolies than competitive markets. Further, NHL players and probably also other US professional sports leagues tend to be represented by unions and governed by CBA's. In other words, the balance and

equilibrium of the competitive market model does not accurately capture the highly regulated labor market that is in play in leagues like the NHL. Additionally, it also does not account for the fact that players are not as easily able to quit and just work for another NHL franchise. Even the statutes of free agency are regulated by the CBA. The bottom line is that while the NHL has a highly regulated labor market, ultimately the mangers of a team play a key role in deciding how labor inputs will be used and translate into performance.

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# Appendix

## Tables

Table 1.1 Team Coding

| Teams | Code |
|---|---|
| ***Metropolitan Division*** | |
| Carolina Hurricanes | 1 |
| Columbus Blue Jackets | 2 |
| New Jersey Devils | 3 |
| New York Islanders | 4 |
| New York Rangers | 5 |
| Philadelphia Flyers | 6 |
| Pittsburg Penguins | 7 |
| Washington Capitals | 8 |
| | |
| ***Atlantic Division*** | |
| Boston Bruins | 9 |
| Buffalo Sabres | 10 |
| Detroit Red Wings | 11 |
| Florida Panthers | 12 |
| Montreal Canadiens | 13 |
| Ottawa Senators | 14 |
| Tampa bay Lightning | 15 |
| Toronto Maple Leafs | 16 |
| | |
| ***Central Division*** | |
| Chicago Blackhawks | 17 |
| Colorado Avalanche | 18 |
| Dallas Stars | 19 |
| Minnesota Wild | 20 |
| Nashville Predators | 21 |
| St. Louis Blues | 22 |
| Winnipeg Jets | 23 |
| | |
| ***Pacific Division*** | |
| Anaheim Ducks | 24 |
| Arizona Coyotes | 25 |
| Edmonton Oilers | 26 |
| Los Angeles Kings | 27 |
| Calgary Flames | 28 |
| San Jose Sharks | 29 |
| Vancouver Canucks | 30 |

Table 1.2 Season Coding

| Season | Code |
|---|---|
| **2008/09** | 0 |
| **2009/10** | 1 |
| **2010/11** | 2 |
| **2011/12** | 3 |
| **2012/13** | 4 |
| **2013/14** | 5 |
| **2014/15** | 6 |
| **2015/16** | 7 |
| **2016/17** | 8 |
| **2017/18** | 9 |
| **2018/19** | 10 |

Table 1.3 Coach Turnover

| Season | Average Age of players (Avg. Age) | Games Played (GP) | Wins (W) | Losses (L) | Overtime/Shootout Losses (OL) | Points (PTS) | Point % (PTS%) |
|---|---|---|---|---|---|---|---|
| 2008/09 | 27.9 | 82 | 41 | 32 | 9 | 91 | 0.557 |
| 2009/10 | 27.9 | 82 | 41 | 31 | 10 | 92 | 0.561 |
| 2010/11 | 27.5 | 82 | 41 | 31 | 10 | 92 | 0.560 |
| 2011/12 | 27.7 | 82 | 41 | 31 | 10 | 92 | 0.561 |
| 2012/13 | 27.6 | 48 | 24 | 19 | 5 | 53 | 0.556 |
| 2013/14 | 27.5 | 82 | 41 | 31 | 10 | 92 | 0.562 |
| 2014/15 | 28.2 | 82 | 41 | 31 | 10 | 92 | 0.562 |
| 2015/16 | 28.0 | 82 | 41 | 32 | 9 | 91 | 0.556 |
| 2016/17 | 28.0 | 82 | 41 | 31 | 10 | 92 | 0.559 |
| 2017/18 | 28.0 | 82 | 41 | 31 | 10 | 92 | 0.558 |
| 2018/19 | 27.9 | 82 | 41 | 32 | 9 | 91 | 0.553 |

*Source:* Hockey-Reference

Table 1.4 Interesting Teams

| Case Study Teams | Total Number Seasons | Season | Total Coach Trades | Playoffs |
|---|---|---|---|---|
| **Calgary Flames** | 1 | 2008/09 | 4 | YES |
| **Pittsburg Penguins** | 1 | 2012/13 | 3 | YES |
| **Buffalo Sabres** | 2 | 2013/14, 2014/15 | 3 | NO, NO |
| **Detroit Red Wings** | 2 | 2008/09, 2014/15 | 1 | YES, YES |
| **Tampa Bay Lightning** | 3 | 2008/09, 2015/16, 2018/19 | 3 | NO, YES, YES |
| **Chicago Blackhawks** | 1 | 2012/13 | 2 | YES |
| **Colorado Avalanche** | 1 | 2012/13 | 4 | NO |
| **Dallas Stars** | 1 | 2015/16 | 5 | YES |
| **Edmonton Oilers** | 1 | 2012/13 | 6 | NO |
| **Los Angeles Kings** | 1 | 2012/13 | 4 | YES |
| **San Jose Sharks** | 1 | 2017/18 | 1 | YES |

Table 1.5. Turnover and reg. Season Win Percentages

| Team Name | Season | Turnover | reg. Season Win % |
|---|---|---|---|
| Carolina Hurricanes | 2008/09 | 37.14% | 54.88% |
| Carolina Hurricanes | 2009/10 | 40.54% | 42.68% |
| Carolina Hurricanes | 2010/11 | 38.24% | 48.78% |
| Carolina Hurricanes | 2011/12 | 36.36% | 40.24% |
| Carolina Hurricanes | 2012/13 | 42.11% | 39.58% |
| Carolina Hurricanes | 2013/14 | 35.48% | 43.90% |
| Carolina Hurricanes | 2014/15 | 38.24% | 36.59% |
| Carolina Hurricanes | 2015/16 | 37.50% | 42.68% |
| Carolina Hurricanes | 2016/17 | 44.44% | 43.90% |
| Carolina Hurricanes | 2017/18 | 38.71% | 43.90% |
| Carolina Hurricanes | 2018/19 | 42.42% | 56.10% |
| Columbus Blue Jackets | 2008/09 | 44.74% | 50.00% |
| Columbus Blue Jackets | 2009/10 | 40.54% | 39.02% |
| Columbus Blue Jackets | 2010/11 | 29.73% | 41.46% |
| Columbus Blue Jackets | 2011/12 | 59.52% | 35.37% |
| Columbus Blue Jackets | 2012/13 | 37.50% | 50.00% |

| | | | |
|---|---|---|---|
| Columbus Blue Jackets | 2013/14 | 35.29% | 52.44% |
| Columbus Blue Jackets | 2014/15 | 45.24% | 51.22% |
| Columbus Blue Jackets | 2015/16 | 29.73% | 41.46% |
| Columbus Blue Jackets | 2016/17 | 29.03% | 60.98% |
| Columbus Blue Jackets | 2017/18 | 42.86% | 54.88% |
| Columbus Blue Jackets | 2018/19 | 26.47% | 57.32% |
| New Jersey Devils | 2008/09 | 37.50% | 62.20% |
| New Jersey Devils | 2009/10 | 45.95% | 58.54% |
| New Jersey Devils | 2010/11 | 50.00% | 46.34% |
| New Jersey Devils | 2011/12 | 35.14% | 58.54% |
| New Jersey Devils | 2012/13 | 35.14% | 39.58% |
| New Jersey Devils | 2013/14 | 40.63% | 42.68% |
| New Jersey Devils | 2014/15 | 34.29% | 39.02% |
| New Jersey Devils | 2015/16 | 53.66% | 46.34% |
| New Jersey Devils | 2016/17 | 47.37% | 34.15% |
| New Jersey Devils | 2017/18 | 41.18% | 53.66% |
| New Jersey Devils | 2018/19 | 39.02% | 37.80% |
| New York Islanders | 2008/09 | 44.19% | 31.71% |
| New York Islanders | 2009/10 | 36.11% | 41.46% |
| New York Islanders | 2010/11 | 50.00% | 36.59% |
| New York Islanders | 2011/12 | 38.89% | 41.46% |
| New York Islanders | 2012/13 | 46.43% | 50.00% |
| New York Islanders | 2013/14 | 48.65% | 41.46% |
| New York Islanders | 2014/15 | 37.50% | 57.32% |
| New York Islanders | 2015/16 | 39.39% | 54.88% |
| New York Islanders | 2016/17 | 26.67% | 50.00% |
| New York Islanders | 2017/18 | 27.27% | 42.68% |
| New York Islanders | 2018/19 | 33.33% | 58.54% |
| New York Rangers | 2008/09 | 50.00% | 52.44% |
| New York Rangers | 2009/10 | 65.71% | 46.34% |
| New York Rangers | 2010/11 | 51.43% | 53.66% |
| New York Rangers | 2011/12 | 34.38% | 62.20% |
| New York Rangers | 2012/13 | 51.43% | 54.17% |
| New York Rangers | 2013/14 | 35.29% | 54.88% |
| New York Rangers | 2014/15 | 44.12% | 64.63% |
| New York Rangers | 2015/16 | 36.67% | 56.10% |

| | | | |
|---|---|---|---|
| New York Rangers | 2016/17 | 42.42% | 58.54% |
| New York Rangers | 2017/18 | 55.00% | 41.46% |
| New York Rangers | 2018/19 | 26.47% | 39.02% |
| Philadelphia Flyers | 2008/09 | 48.65% | 53.66% |
| Philadelphia Flyers | 2009/10 | 45.45% | 50.00% |
| Philadelphia Flyers | 2010/11 | 40.00% | 57.32% |
| Philadelphia Flyers | 2011/12 | 51.52% | 57.32% |
| Philadelphia Flyers | 2012/13 | 50.00% | 47.92% |
| Philadelphia Flyers | 2013/14 | 33.33% | 51.22% |
| Philadelphia Flyers | 2014/15 | 45.45% | 40.24% |
| Philadelphia Flyers | 2015/16 | 24.14% | 50.00% |
| Philadelphia Flyers | 2016/17 | 30.30% | 47.56% |
| Philadelphia Flyers | 2017/18 | 43.75% | 51.22% |
| Philadelphia Flyers | 2018/19 | 39.47% | 45.12% |
| Pittsburgh Penguins | 2008/09 | 25.00% | 54.88% |
| Pittsburgh Penguins | 2009/10 | 40.54% | 57.32% |
| Pittsburgh Penguins | 2010/11 | 35.14% | 59.76% |
| Pittsburgh Penguins | 2011/12 | 31.43% | 62.20% |
| Pittsburgh Penguins | 2012/13 | 36.36% | 75.00% |
| Pittsburgh Penguins | 2013/14 | 48.72% | 62.20% |
| Pittsburgh Penguins | 2014/15 | 52.50% | 52.44% |
| Pittsburgh Penguins | 2015/16 | 51.28% | 58.54% |
| Pittsburgh Penguins | 2016/17 | 28.21% | 60.98% |
| Pittsburgh Penguins | 2017/18 | 37.14% | 57.32% |
| Pittsburgh Penguins | 2018/19 | 38.89% | 53.66% |
| Washington Capitals | 2008/09 | 33.33% | 60.98% |
| Washington Capitals | 2009/10 | 26.32% | 65.85% |
| Washington Capitals | 2010/11 | 31.43% | 58.54% |
| Washington Capitals | 2011/12 | 33.33% | 51.22% |
| Washington Capitals | 2012/13 | 35.48% | 56.25% |
| Washington Capitals | 2013/14 | 43.59% | 46.34% |
| Washington Capitals | 2014/15 | 28.13% | 54.88% |
| Washington Capitals | 2015/16 | 42.42% | 68.29% |
| Washington Capitals | 2016/17 | 26.67% | 67.07% |
| Washington Capitals | 2017/18 | 35.48% | 59.76% |
| Washington Capitals | 2018/19 | 21.43% | 58.54% |

| | | | |
|---|---|---|---|
| Boston Bruins | 2008/09 | 31.25% | 64.63% |
| Boston Bruins | 2009/10 | 42.42% | 47.56% |
| Boston Bruins | 2010/11 | 35.48% | 56.10% |
| Boston Bruins | 2011/12 | 37.14% | 59.76% |
| Boston Bruins | 2012/13 | 31.25% | 58.33% |
| Boston Bruins | 2013/14 | 45.71% | 65.85% |
| Boston Bruins | 2014/15 | 25.00% | 50.00% |
| Boston Bruins | 2015/16 | 42.42% | 51.22% |
| Boston Bruins | 2016/17 | 50.00% | 53.66% |
| Boston Bruins | 2017/18 | 32.43% | 60.98% |
| Boston Bruins | 2018/19 | 51.28% | 59.76% |
| Buffalo Sabres | 2008/09 | 28.13% | 50.00% |
| Buffalo Sabres | 2009/10 | 20.69% | 54.88% |
| Buffalo Sabres | 2010/11 | 34.38% | 52.44% |
| Buffalo Sabres | 2011/12 | 48.48% | 47.56% |
| Buffalo Sabres | 2012/13 | 29.03% | 43.75% |
| Buffalo Sabres | 2013/14 | 56.41% | 25.61% |
| Buffalo Sabres | 2014/15 | 33.33% | 28.05% |
| Buffalo Sabres | 2015/16 | 51.43% | 42.68% |
| Buffalo Sabres | 2016/17 | 39.47% | 40.24% |
| Buffalo Sabres | 2017/18 | 41.03% | 30.49% |
| Buffalo Sabres | 2018/19 | 44.12% | 40.24% |
| Detroit Red Wings | 2008/09 | 13.79% | 62.20% |
| Detroit Red Wings | 2009/10 | 30.00% | 53.66% |
| Detroit Red Wings | 2010/11 | 27.59% | 57.32% |
| Detroit Red Wings | 2011/12 | 34.38% | 58.54% |
| Detroit Red Wings | 2012/13 | 31.25% | 50.00% |
| Detroit Red Wings | 2013/14 | 34.21% | 47.56% |
| Detroit Red Wings | 2014/15 | 12.50% | 52.44% |
| Detroit Red Wings | 2015/16 | 22.58% | 50.00% |
| Detroit Red Wings | 2016/17 | 38.89% | 40.24% |
| Detroit Red Wings | 2017/18 | 26.67% | 36.59% |
| Detroit Red Wings | 2018/19 | 34.21% | 39.02% |
| Florida Panthers | 2008/09 | 33.33% | 50.00% |
| Florida Panthers | 2009/10 | 50.00% | 39.02% |
| Florida Panthers | 2010/11 | 48.72% | 36.59% |

| | | | |
|---|---|---|---|
| Florida Panthers | 2011/12 | 60.98% | 46.34% |
| Florida Panthers | 2012/13 | 37.84% | 31.25% |
| Florida Panthers | 2013/14 | 55.00% | 35.37% |
| Florida Panthers | 2014/15 | 35.48% | 46.34% |
| Florida Panthers | 2015/16 | 40.00% | 57.32% |
| Florida Panthers | 2016/17 | 50.00% | 42.68% |
| Florida Panthers | 2017/18 | 46.88% | 53.66% |
| Florida Panthers | 2018/19 | 41.03% | 43.90% |
| Montreal Canadiens | 2008/09 | 32.35% | 50.00% |
| Montreal Canadiens | 2009/10 | 51.28% | 47.56% |
| Montreal Canadiens | 2010/11 | 35.29% | 53.66% |
| Montreal Canadiens | 2011/12 | 41.18% | 37.80% |
| Montreal Canadiens | 2012/13 | 35.48% | 60.42% |
| Montreal Canadiens | 2013/14 | 36.11% | 56.10% |
| Montreal Canadiens | 2014/15 | 41.67% | 60.98% |
| Montreal Canadiens | 2015/16 | 48.89% | 46.34% |
| Montreal Canadiens | 2016/17 | 39.02% | 57.32% |
| Montreal Canadiens | 2017/18 | 42.11% | 35.37% |
| Montreal Canadiens | 2018/19 | 44.12% | 53.66% |
| Ottawa Senators | 2008/09 | 42.42% | 43.90% |
| Ottawa Senators | 2009/10 | 42.86% | 53.66% |
| Ottawa Senators | 2010/11 | 41.46% | 39.02% |
| Ottawa Senators | 2011/12 | 40.00% | 50.00% |
| Ottawa Senators | 2012/13 | 37.14% | 52.08% |
| Ottawa Senators | 2013/14 | 22.58% | 45.12% |
| Ottawa Senators | 2014/15 | 20.69% | 52.44% |
| Ottawa Senators | 2015/16 | 35.14% | 46.34% |
| Ottawa Senators | 2016/17 | 35.00% | 53.66% |
| Ottawa Senators | 2017/18 | 38.64% | 34.15% |
| Ottawa Senators | 2018/19 | 45.83% | 35.37% |
| Tampa Bay Lightning | 2008/09 | 72.00% | 29.27% |
| Tampa Bay Lightning | 2009/10 | 54.29% | 41.46% |
| Tampa Bay Lightning | 2010/11 | 56.25% | 56.10% |
| Tampa Bay Lightning | 2011/12 | 52.63% | 46.34% |
| Tampa Bay Lightning | 2012/13 | 48.65% | 37.50% |
| Tampa Bay Lightning | 2013/14 | 29.73% | 56.10% |

| | | | |
|---|---|---|---|
| Tampa Bay Lightning | 2014/15 | 50.00% | 60.98% |
| Tampa Bay Lightning | 2015/16 | 18.75% | 56.10% |
| Tampa Bay Lightning | 2016/17 | 29.73% | 51.22% |
| Tampa Bay Lightning | 2017/18 | 22.58% | 65.85% |
| Tampa Bay Lightning | 2018/19 | 21.43% | 75.61% |
| Toronto Maple Leafs | 2008/09 | 56.41% | 41.46% |
| Toronto Maple Leafs | 2009/10 | 57.89% | 36.59% |
| Toronto Maple Leafs | 2010/11 | 44.44% | 45.12% |
| Toronto Maple Leafs | 2011/12 | 33.33% | 42.68% |
| Toronto Maple Leafs | 2012/13 | 23.33% | 54.17% |
| Toronto Maple Leafs | 2013/14 | 55.56% | 46.34% |
| Toronto Maple Leafs | 2014/15 | 50.00% | 36.59% |
| Toronto Maple Leafs | 2015/16 | 63.04% | 35.37% |
| Toronto Maple Leafs | 2016/17 | 41.18% | 48.78% |
| Toronto Maple Leafs | 2017/18 | 30.30% | 59.76% |
| Toronto Maple Leafs | 2018/19 | 31.03% | 56.10% |
| Chicago Blackhawks | 2008/09 | 32.26% | 56.10% |
| Chicago Blackhawks | 2009/10 | 29.03% | 63.41% |
| Chicago Blackhawks | 2010/11 | 50.00% | 53.66% |
| Chicago Blackhawks | 2011/12 | 48.48% | 54.88% |
| Chicago Blackhawks | 2012/13 | 21.88% | 75.00% |
| Chicago Blackhawks | 2013/14 | 33.33% | 56.10% |
| Chicago Blackhawks | 2014/15 | 40.54% | 58.54% |
| Chicago Blackhawks | 2015/16 | 52.50% | 57.32% |
| Chicago Blackhawks | 2016/17 | 34.48% | 60.98% |
| Chicago Blackhawks | 2017/18 | 65.79% | 40.24% |
| Chicago Blackhawks | 2018/19 | 47.06% | 43.90% |
| Colorado Avalanche | 2008/09 | 43.24% | 39.02% |
| Colorado Avalanche | 2009/10 | 35.14% | 52.44% |
| Colorado Avalanche | 2010/11 | 46.15% | 36.59% |
| Colorado Avalanche | 2011/12 | 42.42% | 50.00% |
| Colorado Avalanche | 2012/13 | 25.81% | 33.33% |
| Colorado Avalanche | 2013/14 | 34.38% | 63.41% |
| Colorado Avalanche | 2014/15 | 44.74% | 47.56% |
| Colorado Avalanche | 2015/16 | 44.44% | 47.56% |
| Colorado Avalanche | 2016/17 | 54.05% | 26.83% |

| | | | |
|---|---|---|---|
| Colorado Avalanche | 2017/18 | 42.42% | 52.44% |
| Colorado Avalanche | 2018/19 | 30.30% | 46.34% |
| Dallas Stars | 2008/09 | 46.15% | 43.90% |
| Dallas Stars | 2009/10 | 35.29% | 45.12% |
| Dallas Stars | 2010/11 | 35.29% | 51.22% |
| Dallas Stars | 2011/12 | 39.39% | 51.22% |
| Dallas Stars | 2012/13 | 39.39% | 45.83% |
| Dallas Stars | 2013/14 | 58.82% | 48.78% |
| Dallas Stars | 2014/15 | 61.29% | 50.00% |
| Dallas Stars | 2015/16 | 60.61% | 60.98% |
| Dallas Stars | 2016/17 | 33.33% | 41.46% |
| Dallas Stars | 2017/18 | 28.57% | 51.22% |
| Dallas Stars | 2018/19 | 50.00% | 52.44% |
| Minnesota Wild | 2008/09 | 48.28% | 48.78% |
| Minnesota Wild | 2009/10 | 57.50% | 46.34% |
| Minnesota Wild | 2010/11 | 37.84% | 47.56% |
| Minnesota Wild | 2011/12 | 51.06% | 42.68% |
| Minnesota Wild | 2012/13 | 41.94% | 54.17% |
| Minnesota Wild | 2013/14 | 41.67% | 52.44% |
| Minnesota Wild | 2014/15 | 31.43% | 56.10% |
| Minnesota Wild | 2015/16 | 51.52% | 46.34% |
| Minnesota Wild | 2016/17 | 29.41% | 59.76% |
| Minnesota Wild | 2017/18 | 42.86% | 54.88% |
| Minnesota Wild | 2018/19 | 40.00% | 45.12% |
| Nashville Predators | 2008/09 | 30.00% | 48.78% |
| Nashville Predators | 2009/10 | 39.39% | 57.32% |
| Nashville Predators | 2010/11 | 37.14% | 53.66% |
| Nashville Predators | 2011/12 | 43.24% | 58.54% |
| Nashville Predators | 2012/13 | 35.29% | 33.33% |
| Nashville Predators | 2013/14 | 47.06% | 46.34% |
| Nashville Predators | 2014/15 | 47.06% | 57.32% |
| Nashville Predators | 2015/16 | 31.25% | 50.00% |
| Nashville Predators | 2016/17 | 62.50% | 50.00% |
| Nashville Predators | 2017/18 | 27.59% | 64.63% |
| Nashville Predators | 2018/19 | 33.33% | 57.32% |
| St. Louis Blues | 2008/09 | 51.28% | 50.00% |

| | | | |
|---|---|---|---|
| St. Louis Blues | 2009/10 | 20.00% | 48.78% |
| St. Louis Blues | 2010/11 | 47.22% | 46.34% |
| St. Louis Blues | 2011/12 | 34.38% | 59.76% |
| St. Louis Blues | 2012/13 | 26.67% | 60.42% |
| St. Louis Blues | 2013/14 | 33.33% | 63.41% |
| St. Louis Blues | 2014/15 | 39.39% | 63.41% |
| St. Louis Blues | 2015/16 | 45.71% | 59.76% |
| St. Louis Blues | 2016/17 | 29.41% | 56.10% |
| St. Louis Blues | 2017/18 | 31.25% | 53.66% |
| St. Louis Blues | 2018/19 | 42.42% | 54.88% |
| Winnipeg Jets | 2008/09 | 41.18% | 42.68% |
| Winnipeg Jets | 2009/10 | 43.33% | 42.68% |
| Winnipeg Jets | 2010/11 | 60.53% | 41.46% |
| Winnipeg Jets | 2011/12 | 36.84% | 45.12% |
| Winnipeg Jets | 2012/13 | 26.67% | 50.00% |
| Winnipeg Jets | 2013/14 | 39.39% | 45.12% |
| Winnipeg Jets | 2014/15 | 31.43% | 52.44% |
| Winnipeg Jets | 2015/16 | 35.29% | 42.68% |
| Winnipeg Jets | 2016/17 | 20.59% | 48.78% |
| Winnipeg Jets | 2017/18 | 25.00% | 63.41% |
| Winnipeg Jets | 2018/19 | 25.00% | 57.32% |
| Anaheim Ducks | 2008/09 | 48.65% | 51.22% |
| Anaheim Ducks | 2009/10 | 48.65% | 47.56% |
| Anaheim Ducks | 2010/11 | 43.59% | 57.32% |
| Anaheim Ducks | 2011/12 | 52.78% | 41.46% |
| Anaheim Ducks | 2012/13 | 41.94% | 62.50% |
| Anaheim Ducks | 2013/14 | 32.35% | 65.85% |
| Anaheim Ducks | 2014/15 | 50.00% | 62.20% |
| Anaheim Ducks | 2015/16 | 50.00% | 56.10% |
| Anaheim Ducks | 2016/17 | 46.15% | 56.10% |
| Anaheim Ducks | 2017/18 | 40.00% | 53.66% |
| Anaheim Ducks | 2018/19 | 48.98% | 42.68% |
| Arizona Coyotes | 2008/09 | 57.89% | 43.90% |
| Arizona Coyotes | 2009/10 | 52.94% | 60.98% |
| Arizona Coyotes | 2010/11 | 39.39% | 52.44% |
| Arizona Coyotes | 2011/12 | 48.57% | 51.22% |

| | | | |
|---|---|---|---|
| Arizona Coyotes | 2012/13 | 29.03% | 43.75% |
| Arizona Coyotes | 2013/14 | 37.14% | 45.12% |
| Arizona Coyotes | 2014/15 | 52.38% | 29.27% |
| Arizona Coyotes | 2015/16 | 53.85% | 42.68% |
| Arizona Coyotes | 2016/17 | 55.56% | 36.59% |
| Arizona Coyotes | 2017/18 | 64.52% | 35.37% |
| Arizona Coyotes | 2018/19 | 37.14% | 47.56% |
| Edmonton Oilers | 2008/09 | 44.12% | 46.34% |
| Edmonton Oilers | 2009/10 | 35.00% | 32.93% |
| Edmonton Oilers | 2010/11 | 40.00% | 30.49% |
| Edmonton Oilers | 2011/12 | 45.95% | 39.02% |
| Edmonton Oilers | 2012/13 | 19.35% | 39.58% |
| Edmonton Oilers | 2013/14 | 60.47% | 35.37% |
| Edmonton Oilers | 2014/15 | 41.86% | 29.27% |
| Edmonton Oilers | 2015/16 | 42.11% | 37.80% |
| Edmonton Oilers | 2016/17 | 33.33% | 57.32% |
| Edmonton Oilers | 2017/18 | 38.24% | 43.90% |
| Edmonton Oilers | 2018/19 | 53.85% | 42.68% |
| Los Angeles Kings | 2008/09 | 38.71% | 41.46% |
| Los Angeles Kings | 2009/10 | 44.12% | 56.10% |
| Los Angeles Kings | 2010/11 | 29.03% | 56.10% |
| Los Angeles Kings | 2011/12 | 27.59% | 48.78% |
| Los Angeles Kings | 2012/13 | 15.38% | 56.25% |
| Los Angeles Kings | 2013/14 | 32.14% | 56.10% |
| Los Angeles Kings | 2014/15 | 35.71% | 48.78% |
| Los Angeles Kings | 2015/16 | 54.55% | 58.54% |
| Los Angeles Kings | 2016/17 | 46.88% | 47.56% |
| Los Angeles Kings | 2017/18 | 43.24% | 54.88% |
| Los Angeles Kings | 2018/19 | 37.84% | 37.80% |
| Calgary Flames | 2008/09 | 67.65% | 56.10% |
| Calgary Flames | 2009/10 | 45.71% | 48.78% |
| Calgary Flames | 2010/11 | 44.12% | 50.00% |
| Calgary Flames | 2011/12 | 42.50% | 45.12% |
| Calgary Flames | 2012/13 | 33.33% | 39.58% |
| Calgary Flames | 2013/14 | 47.73% | 42.68% |
| Calgary Flames | 2014/15 | 41.03% | 54.88% |

| | | | |
|---|---|---|---|
| Calgary Flames | 2015/16 | 37.50% | 42.68% |
| Calgary Flames | 2016/17 | 47.06% | 54.88% |
| Calgary Flames | 2017/18 | 34.29% | 45.12% |
| Calgary Flames | 2018/19 | 48.39% | 60.98% |
| San Jose Sharks | 2008/09 | 33.33% | 64.63% |
| San Jose Sharks | 2009/10 | 53.13% | 62.20% |
| San Jose Sharks | 2010/11 | 37.50% | 58.54% |
| San Jose Sharks | 2011/12 | 34.48% | 52.44% |
| San Jose Sharks | 2012/13 | 46.88% | 52.08% |
| San Jose Sharks | 2013/14 | 20.69% | 62.20% |
| San Jose Sharks | 2014/15 | 40.54% | 48.78% |
| San Jose Sharks | 2015/16 | 42.42% | 56.10% |
| San Jose Sharks | 2016/17 | 28.13% | 56.10% |
| San Jose Sharks | 2017/18 | 13.79% | 54.88% |
| San Jose Sharks | 2018/19 | 25.00% | 56.10% |
| Vancouver Canucks | 2008/09 | 46.88% | 54.88% |
| Vancouver Canucks | 2009/10 | 42.86% | 59.76% |
| Vancouver Canucks | 2010/11 | 43.59% | 65.85% |
| Vancouver Canucks | 2011/12 | 31.43% | 62.20% |
| Vancouver Canucks | 2012/13 | 30.30% | 54.17% |
| Vancouver Canucks | 2013/14 | 48.65% | 43.90% |
| Vancouver Canucks | 2014/15 | 40.63% | 58.54% |
| Vancouver Canucks | 2015/16 | 48.65% | 37.80% |
| Vancouver Canucks | 2016/17 | 43.59% | 36.59% |
| Vancouver Canucks | 2017/18 | 40.54% | 37.80% |
| Vancouver Canucks | 2018/19 | 38.10% | 42.68% |

Table 1.6 Calculation of Lag Win Percentage $(t-1)$

| Time -1 | | | | |
|---|---|---|---|---|
| **Team** | **Season Turnover** | **Turnover %** | **Lag reg. Season Wins %** | **Season reg. Wins** |
| 1 | 2008/09 | 0.3714 | 0.4268 | 2009/10 |
| 1 | 2009/10 | 0.4054 | 0.4878 | 2010/11 |
| 1 | 2010/11 | 0.3824 | 0.4024 | 2011/12 |
| 1 | 2011/12 | 0.3636 | 0.3958 | 2012/13 |
| 1 | 2012/13 | 0.4211 | 0.4390 | 2013/14 |
| 1 | 2013/14 | 0.3548 | 0.3659 | 2014/15 |
| 1 | 2014/15 | 0.3824 | 0.4268 | 2015/16 |
| 1 | 2015/16 | 0.3750 | 0.4390 | 2016/17 |
| 1 | 2016/17 | 0.4444 | 0.4390 | 2017/18 |
| 1 | 2017/18 | 0.3871 | 0.5610 | 2018/19 |
| 2 | 2008/09 | 0.4474 | 0.3902 | 2009/10 |
| 2 | 2009/10 | 0.4054 | 0.4146 | 2010/11 |
| 2 | 2010/11 | 0.2973 | 0.3537 | 2011/12 |
| 2 | 2011/12 | 0.5952 | 0.5000 | 2012/13 |
| 2 | 2012/13 | 0.3750 | 0.5244 | 2013/14 |
| 2 | 2013/14 | 0.3529 | 0.5122 | 2014/15 |
| 2 | 2014/15 | 0.4524 | 0.4146 | 2015/16 |
| 2 | 2015/16 | 0.2973 | 0.6098 | 2016/17 |
| 2 | 2016/17 | 0.2903 | 0.5488 | 2017/18 |
| 2 | 2017/18 | 0.4286 | 0.5732 | 2018/19 |
| 3 | 2008/09 | 0.3750 | 0.5854 | 2009/10 |
| 3 | 2009/10 | 0.4595 | 0.4634 | 2010/11 |
| 3 | 2010/11 | 0.5000 | 0.5854 | 2011/12 |
| 3 | 2011/12 | 0.3514 | 0.3958 | 2012/13 |
| 3 | 2012/13 | 0.3514 | 0.4268 | 2013/14 |
| 3 | 2013/14 | 0.4063 | 0.3902 | 2014/15 |
| 3 | 2014/15 | 0.3429 | 0.4634 | 2015/16 |
| 3 | 2015/16 | 0.5366 | 0.3415 | 2016/17 |
| 3 | 2016/17 | 0.4737 | 0.5366 | 2017/18 |
| 3 | 2017/18 | 0.4118 | 0.3780 | 2018/19 |
| 4 | 2008/09 | 0.4419 | 0.4146 | 2009/10 |

| | | | | |
|---|---|---|---|---|
| 4 | 2009/10 | 0.3611 | 0.3659 | 2010/11 |
| 4 | 2010/11 | 0.5000 | 0.4146 | 2011/12 |
| 4 | 2011/12 | 0.3889 | 0.5000 | 2012/13 |
| 4 | 2012/13 | 0.4643 | 0.4146 | 2013/14 |
| 4 | 2013/14 | 0.4865 | 0.5732 | 2014/15 |
| 4 | 2014/15 | 0.3750 | 0.5488 | 2015/16 |
| 4 | 2015/16 | 0.3939 | 0.5000 | 2016/17 |
| 4 | 2016/17 | 0.2667 | 0.4268 | 2017/18 |
| 4 | 2017/18 | 0.2727 | 0.5854 | 2018/19 |
| 5 | 2008/09 | 0.5000 | 0.4634 | 2009/10 |
| 5 | 2009/10 | 0.6571 | 0.5366 | 2010/11 |
| 5 | 2010/11 | 0.5143 | 0.6220 | 2011/12 |
| 5 | 2011/12 | 0.3438 | 0.5417 | 2012/13 |
| 5 | 2012/13 | 0.5143 | 0.5488 | 2013/14 |
| 5 | 2013/14 | 0.3529 | 0.6463 | 2014/15 |
| 5 | 2014/15 | 0.4412 | 0.5610 | 2015/16 |
| 5 | 2015/16 | 0.3667 | 0.5854 | 2016/17 |
| 5 | 2016/17 | 0.4242 | 0.4146 | 2017/18 |
| 5 | 2017/18 | 0.5500 | 0.3902 | 2018/19 |
| 6 | 2008/09 | 0.4865 | 0.5000 | 2009/10 |
| 6 | 2009/10 | 0.4545 | 0.5732 | 2010/11 |
| 6 | 2010/11 | 0.4000 | 0.5732 | 2011/12 |
| 6 | 2011/12 | 0.5152 | 0.4792 | 2012/13 |
| 6 | 2012/13 | 0.5000 | 0.5122 | 2013/14 |
| 6 | 2013/14 | 0.3333 | 0.4024 | 2014/15 |
| 6 | 2014/15 | 0.4545 | 0.5000 | 2015/16 |
| 6 | 2015/16 | 0.2414 | 0.4756 | 2016/17 |
| 6 | 2016/17 | 0.3030 | 0.5122 | 2017/18 |
| 6 | 2017/18 | 0.4375 | 0.4512 | 2018/19 |
| 7 | 2008/09 | 0.2500 | 0.5732 | 2009/10 |
| 7 | 2009/10 | 0.4054 | 0.5976 | 2010/11 |
| 7 | 2010/11 | 0.3514 | 0.6220 | 2011/12 |
| 7 | 2011/12 | 0.3143 | 0.7500 | 2012/13 |
| 7 | 2012/13 | 0.3636 | 0.6220 | 2013/14 |
| 7 | 2013/14 | 0.4872 | 0.5244 | 2014/15 |
| 7 | 2014/15 | 0.5250 | 0.5854 | 2015/16 |

| | | | | |
|---|---|---|---|---|
| 7 | 2015/16 | 0.5128 | 0.6098 | 2016/17 |
| 7 | 2016/17 | 0.2821 | 0.5732 | 2017/18 |
| 7 | 2017/18 | 0.3714 | 0.5366 | 2018/19 |
| 8 | 2008/09 | 0.3333 | 0.6585 | 2009/10 |
| 8 | 2009/10 | 0.2632 | 0.5854 | 2010/11 |
| 8 | 2010/11 | 0.3143 | 0.5122 | 2011/12 |
| 8 | 2011/12 | 0.3333 | 0.5625 | 2012/13 |
| 8 | 2012/13 | 0.3548 | 0.4634 | 2013/14 |
| 8 | 2013/14 | 0.4359 | 0.5488 | 2014/15 |
| 8 | 2014/15 | 0.2813 | 0.6829 | 2015/16 |
| 8 | 2015/16 | 0.4242 | 0.6707 | 2016/17 |
| 8 | 2016/17 | 0.2667 | 0.5976 | 2017/18 |
| 8 | 2017/18 | 0.3548 | 0.5854 | 2018/19 |
| 9 | 2008/09 | 0.3125 | 0.4756 | 2009/10 |
| 9 | 2009/10 | 0.4242 | 0.5610 | 2010/11 |
| 9 | 2010/11 | 0.3548 | 0.5976 | 2011/12 |
| 9 | 2011/12 | 0.3714 | 0.5833 | 2012/13 |
| 9 | 2012/13 | 0.3125 | 0.6585 | 2013/14 |
| 9 | 2013/14 | 0.4571 | 0.5000 | 2014/15 |
| 9 | 2014/15 | 0.2500 | 0.5122 | 2015/16 |
| 9 | 2015/16 | 0.4242 | 0.5366 | 2016/17 |
| 9 | 2016/17 | 0.5000 | 0.6098 | 2017/18 |
| 9 | 2017/18 | 0.3243 | 0.5976 | 2018/19 |
| 10 | 2008/09 | 0.2813 | 0.5488 | 2009/10 |
| 10 | 2009/10 | 0.2069 | 0.5244 | 2010/11 |
| 10 | 2010/11 | 0.3438 | 0.4756 | 2011/12 |
| 10 | 2011/12 | 0.4848 | 0.4375 | 2012/13 |
| 10 | 2012/13 | 0.2903 | 0.2561 | 2013/14 |
| 10 | 2013/14 | 0.5641 | 0.2805 | 2014/15 |
| 10 | 2014/15 | 0.3333 | 0.4268 | 2015/16 |
| 10 | 2015/16 | 0.5143 | 0.4024 | 2016/17 |
| 10 | 2016/17 | 0.3947 | 0.3049 | 2017/18 |
| 10 | 2017/18 | 0.4103 | 0.4024 | 2018/19 |
| 11 | 2008/09 | 0.1379 | 0.5366 | 2009/10 |
| 11 | 2009/10 | 0.3000 | 0.5732 | 2010/11 |
| 11 | 2010/11 | 0.2759 | 0.5854 | 2011/12 |

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|---|---|---|---|---|
| 11 | 2011/12 | 0.3438 | 0.5000 | 2012/13 |
| 11 | 2012/13 | 0.3125 | 0.4756 | 2013/14 |
| 11 | 2013/14 | 0.3421 | 0.5244 | 2014/15 |
| 11 | 2014/15 | 0.1250 | 0.5000 | 2015/16 |
| 11 | 2015/16 | 0.2258 | 0.4024 | 2016/17 |
| 11 | 2016/17 | 0.3889 | 0.3659 | 2017/18 |
| 11 | 2017/18 | 0.2667 | 0.3902 | 2018/19 |
| 12 | 2008/09 | 0.3333 | 0.3902 | 2009/10 |
| 12 | 2009/10 | 0.5000 | 0.3659 | 2010/11 |
| 12 | 2010/11 | 0.4872 | 0.4634 | 2011/12 |
| 12 | 2011/12 | 0.6098 | 0.3125 | 2012/13 |
| 12 | 2012/13 | 0.3784 | 0.3537 | 2013/14 |
| 12 | 2013/14 | 0.5500 | 0.4634 | 2014/15 |
| 12 | 2014/15 | 0.3548 | 0.5732 | 2015/16 |
| 12 | 2015/16 | 0.4000 | 0.4268 | 2016/17 |
| 12 | 2016/17 | 0.5000 | 0.5366 | 2017/18 |
| 12 | 2017/18 | 0.4688 | 0.4390 | 2018/19 |
| 13 | 2008/09 | 0.3235 | 0.4756 | 2009/10 |
| 13 | 2009/10 | 0.5128 | 0.5366 | 2010/11 |
| 13 | 2010/11 | 0.3529 | 0.3780 | 2011/12 |
| 13 | 2011/12 | 0.4118 | 0.6042 | 2012/13 |
| 13 | 2012/13 | 0.3548 | 0.5610 | 2013/14 |
| 13 | 2013/14 | 0.3611 | 0.6098 | 2014/15 |
| 13 | 2014/15 | 0.4167 | 0.4634 | 2015/16 |
| 13 | 2015/16 | 0.4889 | 0.5732 | 2016/17 |
| 13 | 2016/17 | 0.3902 | 0.3537 | 2017/18 |
| 13 | 2017/18 | 0.4211 | 0.5366 | 2018/19 |
| 14 | 2008/09 | 0.4242 | 0.5366 | 2009/10 |
| 14 | 2009/10 | 0.4286 | 0.3902 | 2010/11 |
| 14 | 2010/11 | 0.4146 | 0.5000 | 2011/12 |
| 14 | 2011/12 | 0.4000 | 0.5208 | 2012/13 |
| 14 | 2012/13 | 0.3714 | 0.4512 | 2013/14 |
| 14 | 2013/14 | 0.2258 | 0.5244 | 2014/15 |
| 14 | 2014/15 | 0.2069 | 0.4634 | 2015/16 |
| 14 | 2015/16 | 0.3514 | 0.5366 | 2016/17 |
| 14 | 2016/17 | 0.3500 | 0.3415 | 2017/18 |

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|---|---|---|---|---|
| 14 | 2017/18 | 0.3864 | 0.3537 | 2018/19 |
| 15 | 2008/09 | 0.7200 | 0.4146 | 2009/10 |
| 15 | 2009/10 | 0.5429 | 0.5610 | 2010/11 |
| 15 | 2010/11 | 0.5625 | 0.4634 | 2011/12 |
| 15 | 2011/12 | 0.5263 | 0.3750 | 2012/13 |
| 15 | 2012/13 | 0.4865 | 0.5610 | 2013/14 |
| 15 | 2013/14 | 0.2973 | 0.6098 | 2014/15 |
| 15 | 2014/15 | 0.5000 | 0.5610 | 2015/16 |
| 15 | 2015/16 | 0.1875 | 0.5122 | 2016/17 |
| 15 | 2016/17 | 0.2973 | 0.6585 | 2017/18 |
| 15 | 2017/18 | 0.2258 | 0.7561 | 2018/19 |
| 16 | 2008/09 | 0.5641 | 0.3659 | 2009/10 |
| 16 | 2009/10 | 0.5789 | 0.4512 | 2010/11 |
| 16 | 2010/11 | 0.4444 | 0.4268 | 2011/12 |
| 16 | 2011/12 | 0.3333 | 0.5417 | 2012/13 |
| 16 | 2012/13 | 0.2333 | 0.4634 | 2013/14 |
| 16 | 2013/14 | 0.5556 | 0.3659 | 2014/15 |
| 16 | 2014/15 | 0.5000 | 0.3537 | 2015/16 |
| 16 | 2015/16 | 0.6304 | 0.4878 | 2016/17 |
| 16 | 2016/17 | 0.4118 | 0.5976 | 2017/18 |
| 16 | 2017/18 | 0.3030 | 0.5610 | 2018/19 |
| 17 | 2008/09 | 0.3226 | 0.6341 | 2009/10 |
| 17 | 2009/10 | 0.2903 | 0.5366 | 2010/11 |
| 17 | 2010/11 | 0.5000 | 0.5488 | 2011/12 |
| 17 | 2011/12 | 0.4848 | 0.7500 | 2012/13 |
| 17 | 2012/13 | 0.2188 | 0.5610 | 2013/14 |
| 17 | 2013/14 | 0.3333 | 0.5854 | 2014/15 |
| 17 | 2014/15 | 0.4054 | 0.5732 | 2015/16 |
| 17 | 2015/16 | 0.5250 | 0.6098 | 2016/17 |
| 17 | 2016/17 | 0.3448 | 0.4024 | 2017/18 |
| 17 | 2017/18 | 0.6579 | 0.4390 | 2018/19 |
| 18 | 2008/09 | 0.4324 | 0.5244 | 2009/10 |
| 18 | 2009/10 | 0.3514 | 0.3659 | 2010/11 |
| 18 | 2010/11 | 0.4615 | 0.5000 | 2011/12 |
| 18 | 2011/12 | 0.4242 | 0.3333 | 2012/13 |
| 18 | 2012/13 | 0.2581 | 0.6341 | 2013/14 |

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|---|---|---|---|---|
| 18 | 2013/14 | 0.3438 | 0.4756 | 2014/15 |
| 18 | 2014/15 | 0.4474 | 0.4756 | 2015/16 |
| 18 | 2015/16 | 0.4444 | 0.2683 | 2016/17 |
| 18 | 2016/17 | 0.5405 | 0.5244 | 2017/18 |
| 18 | 2017/18 | 0.4242 | 0.4634 | 2018/19 |
| 19 | 2008/09 | 0.4615 | 0.4512 | 2009/10 |
| 19 | 2009/10 | 0.3529 | 0.5122 | 2010/11 |
| 19 | 2010/11 | 0.3529 | 0.5122 | 2011/12 |
| 19 | 2011/12 | 0.3939 | 0.4583 | 2012/13 |
| 19 | 2012/13 | 0.3939 | 0.4878 | 2013/14 |
| 19 | 2013/14 | 0.5882 | 0.5000 | 2014/15 |
| 19 | 2014/15 | 0.6129 | 0.6098 | 2015/16 |
| 19 | 2015/16 | 0.6061 | 0.4146 | 2016/17 |
| 19 | 2016/17 | 0.3333 | 0.5122 | 2017/18 |
| 19 | 2017/18 | 0.2857 | 0.5244 | 2018/19 |
| 20 | 2008/09 | 0.4828 | 0.4634 | 2009/10 |
| 20 | 2009/10 | 0.5750 | 0.4756 | 2010/11 |
| 20 | 2010/11 | 0.3784 | 0.4268 | 2011/12 |
| 20 | 2011/12 | 0.5106 | 0.5417 | 2012/13 |
| 20 | 2012/13 | 0.4194 | 0.5244 | 2013/14 |
| 20 | 2013/14 | 0.4167 | 0.5610 | 2014/15 |
| 20 | 2014/15 | 0.3143 | 0.4634 | 2015/16 |
| 20 | 2015/16 | 0.5152 | 0.5976 | 2016/17 |
| 20 | 2016/17 | 0.2941 | 0.5488 | 2017/18 |
| 20 | 2017/18 | 0.4286 | 0.4512 | 2018/19 |
| 21 | 2008/09 | 0.3000 | 0.5732 | 2009/10 |
| 21 | 2009/10 | 0.3939 | 0.5366 | 2010/11 |
| 21 | 2010/11 | 0.3714 | 0.5854 | 2011/12 |
| 21 | 2011/12 | 0.4324 | 0.3333 | 2012/13 |
| 21 | 2012/13 | 0.3529 | 0.4634 | 2013/14 |
| 21 | 2013/14 | 0.4706 | 0.5732 | 2014/15 |
| 21 | 2014/15 | 0.4706 | 0.5000 | 2015/16 |
| 21 | 2015/16 | 0.3125 | 0.5000 | 2016/17 |
| 21 | 2016/17 | 0.6250 | 0.6463 | 2017/18 |
| 21 | 2017/18 | 0.2759 | 0.5732 | 2018/19 |
| 22 | 2008/09 | 0.5128 | 0.4878 | 2009/10 |

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|---|---|---|---|---|
| 22 | 2009/10 | 0.2000 | 0.4634 | 2010/11 |
| 22 | 2010/11 | 0.4722 | 0.5976 | 2011/12 |
| 22 | 2011/12 | 0.3438 | 0.6042 | 2012/13 |
| 22 | 2012/13 | 0.2667 | 0.6341 | 2013/14 |
| 22 | 2013/14 | 0.3333 | 0.6341 | 2014/15 |
| 22 | 2014/15 | 0.3939 | 0.5976 | 2015/16 |
| 22 | 2015/16 | 0.4571 | 0.5610 | 2016/17 |
| 22 | 2016/17 | 0.2941 | 0.5366 | 2017/18 |
| 22 | 2017/18 | 0.3125 | 0.5488 | 2018/19 |
| 23 | 2008/09 | 0.4118 | 0.4268 | 2009/10 |
| 23 | 2009/10 | 0.4333 | 0.4146 | 2010/11 |
| 23 | 2010/11 | 0.6053 | 0.4512 | 2011/12 |
| 23 | 2011/12 | 0.3684 | 0.5000 | 2012/13 |
| 23 | 2012/13 | 0.2667 | 0.4512 | 2013/14 |
| 23 | 2013/14 | 0.3939 | 0.5244 | 2014/15 |
| 23 | 2014/15 | 0.3143 | 0.4268 | 2015/16 |
| 23 | 2015/16 | 0.3529 | 0.4878 | 2016/17 |
| 23 | 2016/17 | 0.2059 | 0.6341 | 2017/18 |
| 23 | 2017/18 | 0.2500 | 0.5732 | 2018/19 |
| 24 | 2008/09 | 0.4865 | 0.4756 | 2009/10 |
| 24 | 2009/10 | 0.4865 | 0.5732 | 2010/11 |
| 24 | 2010/11 | 0.4359 | 0.4146 | 2011/12 |
| 24 | 2011/12 | 0.5278 | 0.6250 | 2012/13 |
| 24 | 2012/13 | 0.4194 | 0.6585 | 2013/14 |
| 24 | 2013/14 | 0.3235 | 0.6220 | 2014/15 |
| 24 | 2014/15 | 0.5000 | 0.5610 | 2015/16 |
| 24 | 2015/16 | 0.5000 | 0.5610 | 2016/17 |
| 24 | 2016/17 | 0.4615 | 0.5366 | 2017/18 |
| 24 | 2017/18 | 0.4000 | 0.4268 | 2018/19 |
| 25 | 2008/09 | 0.5789 | 0.6098 | 2009/10 |
| 25 | 2009/10 | 0.5294 | 0.5244 | 2010/11 |
| 25 | 2010/11 | 0.3939 | 0.5122 | 2011/12 |
| 25 | 2011/12 | 0.4857 | 0.4375 | 2012/13 |
| 25 | 2012/13 | 0.2903 | 0.4512 | 2013/14 |
| 25 | 2013/14 | 0.3714 | 0.2927 | 2014/15 |
| 25 | 2014/15 | 0.5238 | 0.4268 | 2015/16 |

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|---|---|---|---|---|
| 25 | 2015/16 | 0.5385 | 0.3659 | 2016/17 |
| 25 | 2016/17 | 0.5556 | 0.3537 | 2017/18 |
| 25 | 2017/18 | 0.6452 | 0.4756 | 2018/19 |
| 26 | 2008/09 | 0.4412 | 0.3293 | 2009/10 |
| 26 | 2009/10 | 0.3500 | 0.3049 | 2010/11 |
| 26 | 2010/11 | 0.4000 | 0.3902 | 2011/12 |
| 26 | 2011/12 | 0.4595 | 0.3958 | 2012/13 |
| 26 | 2012/13 | 0.1935 | 0.3537 | 2013/14 |
| 26 | 2013/14 | 0.6047 | 0.2927 | 2014/15 |
| 26 | 2014/15 | 0.4186 | 0.3780 | 2015/16 |
| 26 | 2015/16 | 0.4211 | 0.5732 | 2016/17 |
| 26 | 2016/17 | 0.3333 | 0.4390 | 2017/18 |
| 26 | 2017/18 | 0.3824 | 0.4268 | 2018/19 |
| 27 | 2008/09 | 0.3871 | 0.5610 | 2009/10 |
| 27 | 2009/10 | 0.4412 | 0.5610 | 2010/11 |
| 27 | 2010/11 | 0.2903 | 0.4878 | 2011/12 |
| 27 | 2011/12 | 0.2759 | 0.5625 | 2012/13 |
| 27 | 2012/13 | 0.1538 | 0.5610 | 2013/14 |
| 27 | 2013/14 | 0.3214 | 0.4878 | 2014/15 |
| 27 | 2014/15 | 0.3571 | 0.5854 | 2015/16 |
| 27 | 2015/16 | 0.5455 | 0.4756 | 2016/17 |
| 27 | 2016/17 | 0.4688 | 0.5488 | 2017/18 |
| 27 | 2017/18 | 0.4324 | 0.3780 | 2018/19 |
| 28 | 2008/09 | 0.6765 | 0.4878 | 2009/10 |
| 28 | 2009/10 | 0.4571 | 0.5000 | 2010/11 |
| 28 | 2010/11 | 0.4412 | 0.4512 | 2011/12 |
| 28 | 2011/12 | 0.4250 | 0.3958 | 2012/13 |
| 28 | 2012/13 | 0.3333 | 0.4268 | 2013/14 |
| 28 | 2013/14 | 0.4773 | 0.5488 | 2014/15 |
| 28 | 2014/15 | 0.4103 | 0.4268 | 2015/16 |
| 28 | 2015/16 | 0.3750 | 0.5488 | 2016/17 |
| 28 | 2016/17 | 0.4706 | 0.4512 | 2017/18 |
| 28 | 2017/18 | 0.3429 | 0.6098 | 2018/19 |
| 29 | 2008/09 | 0.3333 | 0.6220 | 2009/10 |
| 29 | 2009/10 | 0.5313 | 0.5854 | 2010/11 |
| 29 | 2010/11 | 0.3750 | 0.5244 | 2011/12 |

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|---|---|---|---|---|
| 29 | 2011/12 | 0.3448 | 0.5208 | 2012/13 |
| 29 | 2012/13 | 0.4688 | 0.6220 | 2013/14 |
| 29 | 2013/14 | 0.2069 | 0.4878 | 2014/15 |
| 29 | 2014/15 | 0.4054 | 0.5610 | 2015/16 |
| 29 | 2015/16 | 0.4242 | 0.5610 | 2016/17 |
| 29 | 2016/17 | 0.2813 | 0.5488 | 2017/18 |
| 29 | 2017/18 | 0.1379 | 0.5610 | 2018/19 |
| 30 | 2008/09 | 0.4688 | 0.5976 | 2009/10 |
| 30 | 2009/10 | 0.4286 | 0.6585 | 2010/11 |
| 30 | 2010/11 | 0.4359 | 0.6220 | 2011/12 |
| 30 | 2011/12 | 0.3143 | 0.5417 | 2012/13 |
| 30 | 2012/13 | 0.3030 | 0.4390 | 2013/14 |
| 30 | 2013/14 | 0.4865 | 0.5854 | 2014/15 |
| 30 | 2014/15 | 0.4063 | 0.3780 | 2015/16 |
| 30 | 2015/16 | 0.4865 | 0.3659 | 2016/17 |
| 30 | 2016/17 | 0.4359 | 0.3780 | 2017/18 |
| 30 | 2017/18 | 0.4054 | 0.4268 | 2018/19 |

Table 1.7 Calculation of Lag Win Percentage $(t-2)$

| Time -2 | | | | |
|---|---|---|---|---|
| **Team** | **Season Turnover** | **Turnover %** | **Lag reg. Season Wins %** | **Season reg. Wins** |
| 1 | 2008/09 | 0.3714 | 0.4878 | 2010/11 |
| 1 | 2009/10 | 0.4054 | 0.4024 | 2011/12 |
| 1 | 2010/11 | 0.3824 | 0.3958 | 2012/13 |
| 1 | 2011/12 | 0.3636 | 0.4390 | 2013/14 |
| 1 | 2012/13 | 0.4211 | 0.3659 | 2014/15 |
| 1 | 2013/14 | 0.3548 | 0.4268 | 2015/16 |
| 1 | 2014/15 | 0.3824 | 0.4390 | 2016/17 |
| 1 | 2015/16 | 0.3750 | 0.4390 | 2017/18 |
| 1 | 2016/17 | 0.4444 | 0.5610 | 2018/19 |
| 2 | 2008/09 | 0.4474 | 0.4146 | 2010/11 |
| 2 | 2009/10 | 0.4054 | 0.3537 | 2011/12 |
| 2 | 2010/11 | 0.2973 | 0.5000 | 2012/13 |

| | | | | |
|---|---|---|---|---|
| 2 | 2011/12 | 0.5952 | 0.5244 | 2013/14 |
| 2 | 2012/13 | 0.3750 | 0.5122 | 2014/15 |
| 2 | 2013/14 | 0.3529 | 0.4146 | 2015/16 |
| 2 | 2014/15 | 0.4524 | 0.6098 | 2016/17 |
| 2 | 2015/16 | 0.2973 | 0.5488 | 2017/18 |
| 2 | 2016/17 | 0.2903 | 0.5732 | 2018/19 |
| 3 | 2008/09 | 0.3750 | 0.4634 | 2010/11 |
| 3 | 2009/10 | 0.4595 | 0.5854 | 2011/12 |
| 3 | 2010/11 | 0.5000 | 0.3958 | 2012/13 |
| 3 | 2011/12 | 0.3514 | 0.4268 | 2013/14 |
| 3 | 2012/13 | 0.3514 | 0.3902 | 2014/15 |
| 3 | 2013/14 | 0.4063 | 0.4634 | 2015/16 |
| 3 | 2014/15 | 0.3429 | 0.3415 | 2016/17 |
| 3 | 2015/16 | 0.5366 | 0.5366 | 2017/18 |
| 3 | 2016/17 | 0.4737 | 0.3780 | 2018/19 |
| 4 | 2008/09 | 0.4419 | 0.3659 | 2010/11 |
| 4 | 2009/10 | 0.3611 | 0.4146 | 2011/12 |
| 4 | 2010/11 | 0.5000 | 0.5000 | 2012/13 |
| 4 | 2011/12 | 0.3889 | 0.4146 | 2013/14 |
| 4 | 2012/13 | 0.4643 | 0.5732 | 2014/15 |
| 4 | 2013/14 | 0.4865 | 0.5488 | 2015/16 |
| 4 | 2014/15 | 0.3750 | 0.5000 | 2016/17 |
| 4 | 2015/16 | 0.3939 | 0.4268 | 2017/18 |
| 4 | 2016/17 | 0.2667 | 0.5854 | 2018/19 |
| 5 | 2008/09 | 0.5000 | 0.5366 | 2010/11 |
| 5 | 2009/10 | 0.6571 | 0.6220 | 2011/12 |
| 5 | 2010/11 | 0.5143 | 0.5417 | 2012/13 |
| 5 | 2011/12 | 0.3438 | 0.5488 | 2013/14 |
| 5 | 2012/13 | 0.5143 | 0.6463 | 2014/15 |
| 5 | 2013/14 | 0.3529 | 0.5610 | 2015/16 |
| 5 | 2014/15 | 0.4412 | 0.5854 | 2016/17 |
| 5 | 2015/16 | 0.3667 | 0.4146 | 2017/18 |
| 5 | 2016/17 | 0.4242 | 0.3902 | 2018/19 |
| 6 | 2008/09 | 0.4865 | 0.5732 | 2010/11 |
| 6 | 2009/10 | 0.4545 | 0.5732 | 2011/12 |
| 6 | 2010/11 | 0.4000 | 0.4792 | 2012/13 |

| | | | | |
|---|---|---|---|---|
| 6 | 2011/12 | 0.5152 | 0.5122 | 2013/14 |
| 6 | 2012/13 | 0.5000 | 0.4024 | 2014/15 |
| 6 | 2013/14 | 0.3333 | 0.5000 | 2015/16 |
| 6 | 2014/15 | 0.4545 | 0.4756 | 2016/17 |
| 6 | 2015/16 | 0.2414 | 0.5122 | 2017/18 |
| 6 | 2016/17 | 0.3030 | 0.4512 | 2018/19 |
| 7 | 2008/09 | 0.2500 | 0.5976 | 2010/11 |
| 7 | 2009/10 | 0.4054 | 0.6220 | 2011/12 |
| 7 | 2010/11 | 0.3514 | 0.7500 | 2012/13 |
| 7 | 2011/12 | 0.3143 | 0.6220 | 2013/14 |
| 7 | 2012/13 | 0.3636 | 0.5244 | 2014/15 |
| 7 | 2013/14 | 0.4872 | 0.5854 | 2015/16 |
| 7 | 2014/15 | 0.5250 | 0.6098 | 2016/17 |
| 7 | 2015/16 | 0.5128 | 0.5732 | 2017/18 |
| 7 | 2016/17 | 0.2821 | 0.5366 | 2018/19 |
| 8 | 2008/09 | 0.3333 | 0.5854 | 2010/11 |
| 8 | 2009/10 | 0.2632 | 0.5122 | 2011/12 |
| 8 | 2010/11 | 0.3143 | 0.5625 | 2012/13 |
| 8 | 2011/12 | 0.3333 | 0.4634 | 2013/14 |
| 8 | 2012/13 | 0.3548 | 0.5488 | 2014/15 |
| 8 | 2013/14 | 0.4359 | 0.6829 | 2015/16 |
| 8 | 2014/15 | 0.2813 | 0.6707 | 2016/17 |
| 8 | 2015/16 | 0.4242 | 0.5976 | 2017/18 |
| 8 | 2016/17 | 0.2667 | 0.5854 | 2018/19 |
| 9 | 2008/09 | 0.3125 | 0.5610 | 2010/11 |
| 9 | 2009/10 | 0.4242 | 0.5976 | 2011/12 |
| 9 | 2010/11 | 0.3548 | 0.5833 | 2012/13 |
| 9 | 2011/12 | 0.3714 | 0.6585 | 2013/14 |
| 9 | 2012/13 | 0.3125 | 0.5000 | 2014/15 |
| 9 | 2013/14 | 0.4571 | 0.5122 | 2015/16 |
| 9 | 2014/15 | 0.2500 | 0.5366 | 2016/17 |
| 9 | 2015/16 | 0.4242 | 0.6098 | 2017/18 |
| 9 | 2016/17 | 0.5000 | 0.5976 | 2018/19 |
| 10 | 2008/09 | 0.2813 | 0.5244 | 2010/11 |
| 10 | 2009/10 | 0.2069 | 0.4756 | 2011/12 |
| 10 | 2010/11 | 0.3438 | 0.4375 | 2012/13 |

| | | | | |
|---|---|---|---|---|
| 10 | 2011/12 | 0.4848 | 0.2561 | 2013/14 |
| 10 | 2012/13 | 0.2903 | 0.2805 | 2014/15 |
| 10 | 2013/14 | 0.5641 | 0.4268 | 2015/16 |
| 10 | 2014/15 | 0.3333 | 0.4024 | 2016/17 |
| 10 | 2015/16 | 0.5143 | 0.3049 | 2017/18 |
| 10 | 2016/17 | 0.3947 | 0.4024 | 2018/19 |
| 11 | 2008/09 | 0.1379 | 0.5732 | 2010/11 |
| 11 | 2009/10 | 0.3000 | 0.5854 | 2011/12 |
| 11 | 2010/11 | 0.2759 | 0.5000 | 2012/13 |
| 11 | 2011/12 | 0.3438 | 0.4756 | 2013/14 |
| 11 | 2012/13 | 0.3125 | 0.5244 | 2014/15 |
| 11 | 2013/14 | 0.3421 | 0.5000 | 2015/16 |
| 11 | 2014/15 | 0.1250 | 0.4024 | 2016/17 |
| 11 | 2015/16 | 0.2258 | 0.3659 | 2017/18 |
| 11 | 2016/17 | 0.3889 | 0.3902 | 2018/19 |
| 12 | 2008/09 | 0.3333 | 0.3659 | 2010/11 |
| 12 | 2009/10 | 0.5000 | 0.4634 | 2011/12 |
| 12 | 2010/11 | 0.4872 | 0.3125 | 2012/13 |
| 12 | 2011/12 | 0.6098 | 0.3537 | 2013/14 |
| 12 | 2012/13 | 0.3784 | 0.4634 | 2014/15 |
| 12 | 2013/14 | 0.5500 | 0.5732 | 2015/16 |
| 12 | 2014/15 | 0.3548 | 0.4268 | 2016/17 |
| 12 | 2015/16 | 0.4000 | 0.5366 | 2017/18 |
| 12 | 2016/17 | 0.5000 | 0.4390 | 2018/19 |
| 13 | 2008/09 | 0.3235 | 0.5366 | 2010/11 |
| 13 | 2009/10 | 0.5128 | 0.3780 | 2011/12 |
| 13 | 2010/11 | 0.3529 | 0.6042 | 2012/13 |
| 13 | 2011/12 | 0.4118 | 0.5610 | 2013/14 |
| 13 | 2012/13 | 0.3548 | 0.6098 | 2014/15 |
| 13 | 2013/14 | 0.3611 | 0.4634 | 2015/16 |
| 13 | 2014/15 | 0.4167 | 0.5732 | 2016/17 |
| 13 | 2015/16 | 0.4889 | 0.3537 | 2017/18 |
| 13 | 2016/17 | 0.3902 | 0.5366 | 2018/19 |
| 14 | 2008/09 | 0.4242 | 0.3902 | 2010/11 |
| 14 | 2009/10 | 0.4286 | 0.5000 | 2011/12 |
| 14 | 2010/11 | 0.4146 | 0.5208 | 2012/13 |

| | | | | |
|---|---|---|---|---|
| 14 | 2011/12 | 0.4000 | 0.4512 | 2013/14 |
| 14 | 2012/13 | 0.3714 | 0.5244 | 2014/15 |
| 14 | 2013/14 | 0.2258 | 0.4634 | 2015/16 |
| 14 | 2014/15 | 0.2069 | 0.5366 | 2016/17 |
| 14 | 2015/16 | 0.3514 | 0.3415 | 2017/18 |
| 14 | 2016/17 | 0.3500 | 0.3537 | 2018/19 |
| 15 | 2008/09 | 0.7200 | 0.5610 | 2010/11 |
| 15 | 2009/10 | 0.5429 | 0.4634 | 2011/12 |
| 15 | 2010/11 | 0.5625 | 0.3750 | 2012/13 |
| 15 | 2011/12 | 0.5263 | 0.5610 | 2013/14 |
| 15 | 2012/13 | 0.4865 | 0.6098 | 2014/15 |
| 15 | 2013/14 | 0.2973 | 0.5610 | 2015/16 |
| 15 | 2014/15 | 0.5000 | 0.5122 | 2016/17 |
| 15 | 2015/16 | 0.1875 | 0.6585 | 2017/18 |
| 15 | 2016/17 | 0.2973 | 0.7561 | 2018/19 |
| 16 | 2008/09 | 0.5641 | 0.4512 | 2010/11 |
| 16 | 2009/10 | 0.5789 | 0.4268 | 2011/12 |
| 16 | 2010/11 | 0.4444 | 0.5417 | 2012/13 |
| 16 | 2011/12 | 0.3333 | 0.4634 | 2013/14 |
| 16 | 2012/13 | 0.2333 | 0.3659 | 2014/15 |
| 16 | 2013/14 | 0.5556 | 0.3537 | 2015/16 |
| 16 | 2014/15 | 0.5000 | 0.4878 | 2016/17 |
| 16 | 2015/16 | 0.6304 | 0.5976 | 2017/18 |
| 16 | 2016/17 | 0.4118 | 0.5610 | 2018/19 |
| 17 | 2008/09 | 0.3226 | 0.5366 | 2010/11 |
| 17 | 2009/10 | 0.2903 | 0.5488 | 2011/12 |
| 17 | 2010/11 | 0.5000 | 0.7500 | 2012/13 |
| 17 | 2011/12 | 0.4848 | 0.5610 | 2013/14 |
| 17 | 2012/13 | 0.2188 | 0.5854 | 2014/15 |
| 17 | 2013/14 | 0.3333 | 0.5732 | 2015/16 |
| 17 | 2014/15 | 0.4054 | 0.6098 | 2016/17 |
| 17 | 2015/16 | 0.5250 | 0.4024 | 2017/18 |
| 17 | 2016/17 | 0.3448 | 0.4390 | 2018/19 |
| 18 | 2008/09 | 0.4324 | 0.3659 | 2010/11 |
| 18 | 2009/10 | 0.3514 | 0.5000 | 2011/12 |
| 18 | 2010/11 | 0.4615 | 0.3333 | 2012/13 |

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|---|---|---|---|---|
| 18 | 2011/12 | 0.4242 | 0.6341 | 2013/14 |
| 18 | 2012/13 | 0.2581 | 0.4756 | 2014/15 |
| 18 | 2013/14 | 0.3438 | 0.4756 | 2015/16 |
| 18 | 2014/15 | 0.4474 | 0.2683 | 2016/17 |
| 18 | 2015/16 | 0.4444 | 0.5244 | 2017/18 |
| 18 | 2016/17 | 0.5405 | 0.4634 | 2018/19 |
| 19 | 2008/09 | 0.4615 | 0.5122 | 2010/11 |
| 19 | 2009/10 | 0.3529 | 0.5122 | 2011/12 |
| 19 | 2010/11 | 0.3529 | 0.4583 | 2012/13 |
| 19 | 2011/12 | 0.3939 | 0.4878 | 2013/14 |
| 19 | 2012/13 | 0.3939 | 0.5000 | 2014/15 |
| 19 | 2013/14 | 0.5882 | 0.6098 | 2015/16 |
| 19 | 2014/15 | 0.6129 | 0.4146 | 2016/17 |
| 19 | 2015/16 | 0.6061 | 0.5122 | 2017/18 |
| 19 | 2016/17 | 0.3333 | 0.5244 | 2018/19 |
| 20 | 2008/09 | 0.4828 | 0.4756 | 2010/11 |
| 20 | 2009/10 | 0.5750 | 0.4268 | 2011/12 |
| 20 | 2010/11 | 0.3784 | 0.5417 | 2012/13 |
| 20 | 2011/12 | 0.5106 | 0.5244 | 2013/14 |
| 20 | 2012/13 | 0.4194 | 0.5610 | 2014/15 |
| 20 | 2013/14 | 0.4167 | 0.4634 | 2015/16 |
| 20 | 2014/15 | 0.3143 | 0.5976 | 2016/17 |
| 20 | 2015/16 | 0.5152 | 0.5488 | 2017/18 |
| 20 | 2016/17 | 0.2941 | 0.4512 | 2018/19 |
| 21 | 2008/09 | 0.3000 | 0.5366 | 2010/11 |
| 21 | 2009/10 | 0.3939 | 0.5854 | 2011/12 |
| 21 | 2010/11 | 0.3714 | 0.3333 | 2012/13 |
| 21 | 2011/12 | 0.4324 | 0.4634 | 2013/14 |
| 21 | 2012/13 | 0.3529 | 0.5732 | 2014/15 |
| 21 | 2013/14 | 0.4706 | 0.5000 | 2015/16 |
| 21 | 2014/15 | 0.4706 | 0.5000 | 2016/17 |
| 21 | 2015/16 | 0.3125 | 0.6463 | 2017/18 |
| 21 | 2016/17 | 0.6250 | 0.5732 | 2018/19 |
| 22 | 2008/09 | 0.5128 | 0.4634 | 2010/11 |
| 22 | 2009/10 | 0.2000 | 0.5976 | 2011/12 |
| 22 | 2010/11 | 0.4722 | 0.6042 | 2012/13 |

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|---|---|---|---|---|
| 22 | 2011/12 | 0.3438 | 0.6341 | 2013/14 |
| 22 | 2012/13 | 0.2667 | 0.6341 | 2014/15 |
| 22 | 2013/14 | 0.3333 | 0.5976 | 2015/16 |
| 22 | 2014/15 | 0.3939 | 0.5610 | 2016/17 |
| 22 | 2015/16 | 0.4571 | 0.5366 | 2017/18 |
| 22 | 2016/17 | 0.2941 | 0.5488 | 2018/19 |
| 23 | 2008/09 | 0.4118 | 0.4146 | 2010/11 |
| 23 | 2009/10 | 0.4333 | 0.4512 | 2011/12 |
| 23 | 2010/11 | 0.6053 | 0.5000 | 2012/13 |
| 23 | 2011/12 | 0.3684 | 0.4512 | 2013/14 |
| 23 | 2012/13 | 0.2667 | 0.5244 | 2014/15 |
| 23 | 2013/14 | 0.3939 | 0.4268 | 2015/16 |
| 23 | 2014/15 | 0.3143 | 0.4878 | 2016/17 |
| 23 | 2015/16 | 0.3529 | 0.6341 | 2017/18 |
| 23 | 2016/17 | 0.2059 | 0.5732 | 2018/19 |
| 24 | 2008/09 | 0.4865 | 0.5732 | 2010/11 |
| 24 | 2009/10 | 0.4865 | 0.4146 | 2011/12 |
| 24 | 2010/11 | 0.4359 | 0.6250 | 2012/13 |
| 24 | 2011/12 | 0.5278 | 0.6585 | 2013/14 |
| 24 | 2012/13 | 0.4194 | 0.6220 | 2014/15 |
| 24 | 2013/14 | 0.3235 | 0.5610 | 2015/16 |
| 24 | 2014/15 | 0.5000 | 0.5610 | 2016/17 |
| 24 | 2015/16 | 0.5000 | 0.5366 | 2017/18 |
| 24 | 2016/17 | 0.4615 | 0.4268 | 2018/19 |
| 25 | 2008/09 | 0.5789 | 0.5244 | 2010/11 |
| 25 | 2009/10 | 0.5294 | 0.5122 | 2011/12 |
| 25 | 2010/11 | 0.3939 | 0.4375 | 2012/13 |
| 25 | 2011/12 | 0.4857 | 0.4512 | 2013/14 |
| 25 | 2012/13 | 0.2903 | 0.2927 | 2014/15 |
| 25 | 2013/14 | 0.3714 | 0.4268 | 2015/16 |
| 25 | 2014/15 | 0.5238 | 0.3659 | 2016/17 |
| 25 | 2015/16 | 0.5385 | 0.3537 | 2017/18 |
| 25 | 2016/17 | 0.5556 | 0.4756 | 2018/19 |
| 26 | 2008/09 | 0.4412 | 0.3049 | 2010/11 |
| 26 | 2009/10 | 0.3500 | 0.3902 | 2011/12 |
| 26 | 2010/11 | 0.4000 | 0.3958 | 2012/13 |

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|---|---|---|---|---|
| 26 | 2011/12 | 0.4595 | 0.3537 | 2013/14 |
| 26 | 2012/13 | 0.1935 | 0.2927 | 2014/15 |
| 26 | 2013/14 | 0.6047 | 0.3780 | 2015/16 |
| 26 | 2014/15 | 0.4186 | 0.5732 | 2016/17 |
| 26 | 2015/16 | 0.4211 | 0.4390 | 2017/18 |
| 26 | 2016/17 | 0.3333 | 0.4268 | 2018/19 |
| 27 | 2008/09 | 0.3871 | 0.5610 | 2010/11 |
| 27 | 2009/10 | 0.4412 | 0.4878 | 2011/12 |
| 27 | 2010/11 | 0.2903 | 0.5625 | 2012/13 |
| 27 | 2011/12 | 0.2759 | 0.5610 | 2013/14 |
| 27 | 2012/13 | 0.1538 | 0.4878 | 2014/15 |
| 27 | 2013/14 | 0.3214 | 0.5854 | 2015/16 |
| 27 | 2014/15 | 0.3571 | 0.4756 | 2016/17 |
| 27 | 2015/16 | 0.5455 | 0.5488 | 2017/18 |
| 27 | 2016/17 | 0.4688 | 0.3780 | 2018/19 |
| 28 | 2008/09 | 0.6765 | 0.5000 | 2010/11 |
| 28 | 2009/10 | 0.4571 | 0.4512 | 2011/12 |
| 28 | 2010/11 | 0.4412 | 0.3958 | 2012/13 |
| 28 | 2011/12 | 0.4250 | 0.4268 | 2013/14 |
| 28 | 2012/13 | 0.3333 | 0.5488 | 2014/15 |
| 28 | 2013/14 | 0.4773 | 0.4268 | 2015/16 |
| 28 | 2014/15 | 0.4103 | 0.5488 | 2016/17 |
| 28 | 2015/16 | 0.3750 | 0.4512 | 2017/18 |
| 28 | 2016/17 | 0.4706 | 0.6098 | 2018/19 |
| 29 | 2008/09 | 0.3333 | 0.5854 | 2010/11 |
| 29 | 2009/10 | 0.5313 | 0.5244 | 2011/12 |
| 29 | 2010/11 | 0.3750 | 0.5208 | 2012/13 |
| 29 | 2011/12 | 0.3448 | 0.6220 | 2013/14 |
| 29 | 2012/13 | 0.4688 | 0.4878 | 2014/15 |
| 29 | 2013/14 | 0.2069 | 0.5610 | 2015/16 |
| 29 | 2014/15 | 0.4054 | 0.5610 | 2016/17 |
| 29 | 2015/16 | 0.4242 | 0.5488 | 2017/18 |
| 29 | 2016/17 | 0.2813 | 0.5610 | 2018/19 |
| 30 | 2008/09 | 0.4688 | 0.6585 | 2010/11 |
| 30 | 2009/10 | 0.4286 | 0.6220 | 2011/12 |
| 30 | 2010/11 | 0.4359 | 0.5417 | 2012/13 |

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|---|---|---|---|---|
| 30 | 2011/12 | 0.3143 | 0.4390 | 2013/14 |
| 30 | 2012/13 | 0.3030 | 0.5854 | 2014/15 |
| 30 | 2013/14 | 0.4865 | 0.3780 | 2015/16 |
| 30 | 2014/15 | 0.4063 | 0.3659 | 2016/17 |
| 30 | 2015/16 | 0.4865 | 0.3780 | 2017/18 |
| 30 | 2016/17 | 0.4359 | 0.4268 | 2018/19 |

Table 1.8 Calculation of Lagged Turnover Percentage $(t-1)$

| Time -1 | | | | |
|---|---|---|---|---|
| **Team** | **Season reg. Wins** | **reg. Season Wins %** | **Lag Turnover %** | **Season Turnover** |
| 1 | 2008/09 | 0.5488 | 0.4054 | 2009/10 |
| 1 | 2009/10 | 0.4268 | 0.3824 | 2010/11 |
| 1 | 2010/11 | 0.4878 | 0.3636 | 2011/12 |
| 1 | 2011/12 | 0.4024 | 0.4211 | 2012/13 |
| 1 | 2012/13 | 0.3958 | 0.3548 | 2013/14 |
| 1 | 2013/14 | 0.4390 | 0.3824 | 2014/15 |
| 1 | 2014/15 | 0.3659 | 0.3750 | 2015/16 |
| 1 | 2015/16 | 0.4268 | 0.4444 | 2016/17 |
| 1 | 2016/17 | 0.4390 | 0.3871 | 2017/18 |
| 1 | 2017/18 | 0.4390 | 0.4242 | 2018/19 |
| 2 | 2008/09 | 0.5000 | 0.4054 | 2009/10 |
| 2 | 2009/10 | 0.3902 | 0.2973 | 2010/11 |
| 2 | 2010/11 | 0.4146 | 0.5952 | 2011/12 |
| 2 | 2011/12 | 0.3537 | 0.3750 | 2012/13 |
| 2 | 2012/13 | 0.5000 | 0.3529 | 2013/14 |
| 2 | 2013/14 | 0.5244 | 0.4524 | 2014/15 |
| 2 | 2014/15 | 0.5122 | 0.2973 | 2015/16 |
| 2 | 2015/16 | 0.4146 | 0.2903 | 2016/17 |
| 2 | 2016/17 | 0.6098 | 0.4286 | 2017/18 |
| 2 | 2017/18 | 0.5488 | 0.2647 | 2018/19 |
| 3 | 2008/09 | 0.6220 | 0.4595 | 2009/10 |
| 3 | 2009/10 | 0.5854 | 0.5000 | 2010/11 |
| 3 | 2010/11 | 0.4634 | 0.3514 | 2011/12 |

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|---|---|---|---|---|
| 3 | 2011/12 | 0.5854 | 0.3514 | 2012/13 |
| 3 | 2012/13 | 0.3958 | 0.4063 | 2013/14 |
| 3 | 2013/14 | 0.4268 | 0.3429 | 2014/15 |
| 3 | 2014/15 | 0.3902 | 0.5366 | 2015/16 |
| 3 | 2015/16 | 0.4634 | 0.4737 | 2016/17 |
| 3 | 2016/17 | 0.3415 | 0.4118 | 2017/18 |
| 3 | 2017/18 | 0.5366 | 0.3902 | 2018/19 |
| 4 | 2008/09 | 0.3171 | 0.3611 | 2009/10 |
| 4 | 2009/10 | 0.4146 | 0.5000 | 2010/11 |
| 4 | 2010/11 | 0.3659 | 0.3889 | 2011/12 |
| 4 | 2011/12 | 0.4146 | 0.4643 | 2012/13 |
| 4 | 2012/13 | 0.5000 | 0.4865 | 2013/14 |
| 4 | 2013/14 | 0.4146 | 0.3750 | 2014/15 |
| 4 | 2014/15 | 0.5732 | 0.3939 | 2015/16 |
| 4 | 2015/16 | 0.5488 | 0.2667 | 2016/17 |
| 4 | 2016/17 | 0.5000 | 0.2727 | 2017/18 |
| 4 | 2017/18 | 0.4268 | 0.3333 | 2018/19 |
| 5 | 2008/09 | 0.5244 | 0.6571 | 2009/10 |
| 5 | 2009/10 | 0.4634 | 0.5143 | 2010/11 |
| 5 | 2010/11 | 0.5366 | 0.3438 | 2011/12 |
| 5 | 2011/12 | 0.6220 | 0.5143 | 2012/13 |
| 5 | 2012/13 | 0.5417 | 0.3529 | 2013/14 |
| 5 | 2013/14 | 0.5488 | 0.4412 | 2014/15 |
| 5 | 2014/15 | 0.6463 | 0.3667 | 2015/16 |
| 5 | 2015/16 | 0.5610 | 0.4242 | 2016/17 |
| 5 | 2016/17 | 0.5854 | 0.5500 | 2017/18 |
| 5 | 2017/18 | 0.4146 | 0.2647 | 2018/19 |
| 6 | 2008/09 | 0.5366 | 0.4545 | 2009/10 |
| 6 | 2009/10 | 0.5000 | 0.4000 | 2010/11 |
| 6 | 2010/11 | 0.5732 | 0.5152 | 2011/12 |
| 6 | 2011/12 | 0.5732 | 0.5000 | 2012/13 |
| 6 | 2012/13 | 0.4792 | 0.3333 | 2013/14 |
| 6 | 2013/14 | 0.5122 | 0.4545 | 2014/15 |
| 6 | 2014/15 | 0.4024 | 0.2414 | 2015/16 |
| 6 | 2015/16 | 0.5000 | 0.3030 | 2016/17 |
| 6 | 2016/17 | 0.4756 | 0.4375 | 2017/18 |

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|---|---|---|---|---|
| 6 | 2017/18 | 0.5122 | 0.3947 | 2018/19 |
| 7 | 2008/09 | 0.5488 | 0.4054 | 2009/10 |
| 7 | 2009/10 | 0.5732 | 0.3514 | 2010/11 |
| 7 | 2010/11 | 0.5976 | 0.3143 | 2011/12 |
| 7 | 2011/12 | 0.6220 | 0.3636 | 2012/13 |
| 7 | 2012/13 | 0.7500 | 0.4872 | 2013/14 |
| 7 | 2013/14 | 0.6220 | 0.5250 | 2014/15 |
| 7 | 2014/15 | 0.5244 | 0.5128 | 2015/16 |
| 7 | 2015/16 | 0.5854 | 0.2821 | 2016/17 |
| 7 | 2016/17 | 0.6098 | 0.3714 | 2017/18 |
| 7 | 2017/18 | 0.5732 | 0.3889 | 2018/19 |
| 8 | 2008/09 | 0.6098 | 0.2632 | 2009/10 |
| 8 | 2009/10 | 0.6585 | 0.3143 | 2010/11 |
| 8 | 2010/11 | 0.5854 | 0.3333 | 2011/12 |
| 8 | 2011/12 | 0.5122 | 0.3548 | 2012/13 |
| 8 | 2012/13 | 0.5625 | 0.4359 | 2013/14 |
| 8 | 2013/14 | 0.4634 | 0.2813 | 2014/15 |
| 8 | 2014/15 | 0.5488 | 0.4242 | 2015/16 |
| 8 | 2015/16 | 0.6829 | 0.2667 | 2016/17 |
| 8 | 2016/17 | 0.6707 | 0.3548 | 2017/18 |
| 8 | 2017/18 | 0.5976 | 0.2143 | 2018/19 |
| 9 | 2008/09 | 0.6463 | 0.4242 | 2009/10 |
| 9 | 2009/10 | 0.4756 | 0.3548 | 2010/11 |
| 9 | 2010/11 | 0.5610 | 0.3714 | 2011/12 |
| 9 | 2011/12 | 0.5976 | 0.3125 | 2012/13 |
| 9 | 2012/13 | 0.5833 | 0.4571 | 2013/14 |
| 9 | 2013/14 | 0.6585 | 0.2500 | 2014/15 |
| 9 | 2014/15 | 0.5000 | 0.4242 | 2015/16 |
| 9 | 2015/16 | 0.5122 | 0.5000 | 2016/17 |
| 9 | 2016/17 | 0.5366 | 0.3243 | 2017/18 |
| 9 | 2017/18 | 0.6098 | 0.5128 | 2018/19 |
| 10 | 2008/09 | 0.5000 | 0.2069 | 2009/10 |
| 10 | 2009/10 | 0.5488 | 0.3438 | 2010/11 |
| 10 | 2010/11 | 0.5244 | 0.4848 | 2011/12 |
| 10 | 2011/12 | 0.4756 | 0.2903 | 2012/13 |
| 10 | 2012/13 | 0.4375 | 0.5641 | 2013/14 |

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|---|---|---|---|---|
| 10 | 2013/14 | 0.2561 | 0.3333 | 2014/15 |
| 10 | 2014/15 | 0.2805 | 0.5143 | 2015/16 |
| 10 | 2015/16 | 0.4268 | 0.3947 | 2016/17 |
| 10 | 2016/17 | 0.4024 | 0.4103 | 2017/18 |
| 10 | 2017/18 | 0.3049 | 0.4412 | 2018/19 |
| 11 | 2008/09 | 0.6220 | 0.3000 | 2009/10 |
| 11 | 2009/10 | 0.5366 | 0.2759 | 2010/11 |
| 11 | 2010/11 | 0.5732 | 0.3438 | 2011/12 |
| 11 | 2011/12 | 0.5854 | 0.3125 | 2012/13 |
| 11 | 2012/13 | 0.5000 | 0.3421 | 2013/14 |
| 11 | 2013/14 | 0.4756 | 0.1250 | 2014/15 |
| 11 | 2014/15 | 0.5244 | 0.2258 | 2015/16 |
| 11 | 2015/16 | 0.5000 | 0.3889 | 2016/17 |
| 11 | 2016/17 | 0.4024 | 0.2667 | 2017/18 |
| 11 | 2017/18 | 0.3659 | 0.3421 | 2018/19 |
| 12 | 2008/09 | 0.5000 | 0.5000 | 2009/10 |
| 12 | 2009/10 | 0.3902 | 0.4872 | 2010/11 |
| 12 | 2010/11 | 0.3659 | 0.6098 | 2011/12 |
| 12 | 2011/12 | 0.4634 | 0.3784 | 2012/13 |
| 12 | 2012/13 | 0.3125 | 0.5500 | 2013/14 |
| 12 | 2013/14 | 0.3537 | 0.3548 | 2014/15 |
| 12 | 2014/15 | 0.4634 | 0.4000 | 2015/16 |
| 12 | 2015/16 | 0.5732 | 0.5000 | 2016/17 |
| 12 | 2016/17 | 0.4268 | 0.4688 | 2017/18 |
| 12 | 2017/18 | 0.5366 | 0.4103 | 2018/19 |
| 13 | 2008/09 | 0.5000 | 0.5128 | 2009/10 |
| 13 | 2009/10 | 0.4756 | 0.3529 | 2010/11 |
| 13 | 2010/11 | 0.5366 | 0.4118 | 2011/12 |
| 13 | 2011/12 | 0.3780 | 0.3548 | 2012/13 |
| 13 | 2012/13 | 0.6042 | 0.3611 | 2013/14 |
| 13 | 2013/14 | 0.5610 | 0.4167 | 2014/15 |
| 13 | 2014/15 | 0.6098 | 0.4889 | 2015/16 |
| 13 | 2015/16 | 0.4634 | 0.3902 | 2016/17 |
| 13 | 2016/17 | 0.5732 | 0.4211 | 2017/18 |
| 13 | 2017/18 | 0.3537 | 0.4412 | 2018/19 |
| 14 | 2008/09 | 0.4390 | 0.4286 | 2009/10 |

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|---|---|---|---|---|
| 14 | 2009/10 | 0.5366 | 0.4146 | 2010/11 |
| 14 | 2010/11 | 0.3902 | 0.4000 | 2011/12 |
| 14 | 2011/12 | 0.5000 | 0.3714 | 2012/13 |
| 14 | 2012/13 | 0.5208 | 0.2258 | 2013/14 |
| 14 | 2013/14 | 0.4512 | 0.2069 | 2014/15 |
| 14 | 2014/15 | 0.5244 | 0.3514 | 2015/16 |
| 14 | 2015/16 | 0.4634 | 0.3500 | 2016/17 |
| 14 | 2016/17 | 0.5366 | 0.3864 | 2017/18 |
| 14 | 2017/18 | 0.3415 | 0.4583 | 2018/19 |
| 15 | 2008/09 | 0.2927 | 0.5429 | 2009/10 |
| 15 | 2009/10 | 0.4146 | 0.5625 | 2010/11 |
| 15 | 2010/11 | 0.5610 | 0.5263 | 2011/12 |
| 15 | 2011/12 | 0.4634 | 0.4865 | 2012/13 |
| 15 | 2012/13 | 0.3750 | 0.2973 | 2013/14 |
| 15 | 2013/14 | 0.5610 | 0.5000 | 2014/15 |
| 15 | 2014/15 | 0.6098 | 0.1875 | 2015/16 |
| 15 | 2015/16 | 0.5610 | 0.2973 | 2016/17 |
| 15 | 2016/17 | 0.5122 | 0.2258 | 2017/18 |
| 15 | 2017/18 | 0.6585 | 0.2143 | 2018/19 |
| 16 | 2008/09 | 0.4146 | 0.5789 | 2009/10 |
| 16 | 2009/10 | 0.3659 | 0.4444 | 2010/11 |
| 16 | 2010/11 | 0.4512 | 0.3333 | 2011/12 |
| 16 | 2011/12 | 0.4268 | 0.2333 | 2012/13 |
| 16 | 2012/13 | 0.5417 | 0.5556 | 2013/14 |
| 16 | 2013/14 | 0.4634 | 0.5000 | 2014/15 |
| 16 | 2014/15 | 0.3659 | 0.6304 | 2015/16 |
| 16 | 2015/16 | 0.3537 | 0.4118 | 2016/17 |
| 16 | 2016/17 | 0.4878 | 0.3030 | 2017/18 |
| 16 | 2017/18 | 0.5976 | 0.3103 | 2018/19 |
| 17 | 2008/09 | 0.5610 | 0.2903 | 2009/10 |
| 17 | 2009/10 | 0.6341 | 0.5000 | 2010/11 |
| 17 | 2010/11 | 0.5366 | 0.4848 | 2011/12 |
| 17 | 2011/12 | 0.5488 | 0.2188 | 2012/13 |
| 17 | 2012/13 | 0.7500 | 0.3333 | 2013/14 |
| 17 | 2013/14 | 0.5610 | 0.4054 | 2014/15 |
| 17 | 2014/15 | 0.5854 | 0.5250 | 2015/16 |

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|---|---|---|---|---|
| 17 | 2015/16 | 0.5732 | 0.3448 | 2016/17 |
| 17 | 2016/17 | 0.6098 | 0.6579 | 2017/18 |
| 17 | 2017/18 | 0.4024 | 0.4706 | 2018/19 |
| 18 | 2008/09 | 0.3902 | 0.3514 | 2009/10 |
| 18 | 2009/10 | 0.5244 | 0.4615 | 2010/11 |
| 18 | 2010/11 | 0.3659 | 0.4242 | 2011/12 |
| 18 | 2011/12 | 0.5000 | 0.2581 | 2012/13 |
| 18 | 2012/13 | 0.3333 | 0.3438 | 2013/14 |
| 18 | 2013/14 | 0.6341 | 0.4474 | 2014/15 |
| 18 | 2014/15 | 0.4756 | 0.4444 | 2015/16 |
| 18 | 2015/16 | 0.4756 | 0.5405 | 2016/17 |
| 18 | 2016/17 | 0.2683 | 0.4242 | 2017/18 |
| 18 | 2017/18 | 0.5244 | 0.3030 | 2018/19 |
| 19 | 2008/09 | 0.4390 | 0.3529 | 2009/10 |
| 19 | 2009/10 | 0.4512 | 0.3529 | 2010/11 |
| 19 | 2010/11 | 0.5122 | 0.3939 | 2011/12 |
| 19 | 2011/12 | 0.5122 | 0.3939 | 2012/13 |
| 19 | 2012/13 | 0.4583 | 0.5882 | 2013/14 |
| 19 | 2013/14 | 0.4878 | 0.6129 | 2014/15 |
| 19 | 2014/15 | 0.5000 | 0.6061 | 2015/16 |
| 19 | 2015/16 | 0.6098 | 0.3333 | 2016/17 |
| 19 | 2016/17 | 0.4146 | 0.2857 | 2017/18 |
| 19 | 2017/18 | 0.5122 | 0.5000 | 2018/19 |
| 20 | 2008/09 | 0.4878 | 0.5750 | 2009/10 |
| 20 | 2009/10 | 0.4634 | 0.3784 | 2010/11 |
| 20 | 2010/11 | 0.4756 | 0.5106 | 2011/12 |
| 20 | 2011/12 | 0.4268 | 0.4194 | 2012/13 |
| 20 | 2012/13 | 0.5417 | 0.4167 | 2013/14 |
| 20 | 2013/14 | 0.5244 | 0.3143 | 2014/15 |
| 20 | 2014/15 | 0.5610 | 0.5152 | 2015/16 |
| 20 | 2015/16 | 0.4634 | 0.2941 | 2016/17 |
| 20 | 2016/17 | 0.5976 | 0.4286 | 2017/18 |
| 20 | 2017/18 | 0.5488 | 0.4000 | 2018/19 |
| 21 | 2008/09 | 0.4878 | 0.3939 | 2009/10 |
| 21 | 2009/10 | 0.5732 | 0.3714 | 2010/11 |
| 21 | 2010/11 | 0.5366 | 0.4324 | 2011/12 |

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|---|---|---|---|---|
| 21 | 2011/12 | 0.5854 | 0.3529 | 2012/13 |
| 21 | 2012/13 | 0.3333 | 0.4706 | 2013/14 |
| 21 | 2013/14 | 0.4634 | 0.4706 | 2014/15 |
| 21 | 2014/15 | 0.5732 | 0.3125 | 2015/16 |
| 21 | 2015/16 | 0.5000 | 0.6250 | 2016/17 |
| 21 | 2016/17 | 0.5000 | 0.2759 | 2017/18 |
| 21 | 2017/18 | 0.6463 | 0.3333 | 2018/19 |
| 22 | 2008/09 | 0.5000 | 0.2000 | 2009/10 |
| 22 | 2009/10 | 0.4878 | 0.4722 | 2010/11 |
| 22 | 2010/11 | 0.4634 | 0.3438 | 2011/12 |
| 22 | 2011/12 | 0.5976 | 0.2667 | 2012/13 |
| 22 | 2012/13 | 0.6042 | 0.3333 | 2013/14 |
| 22 | 2013/14 | 0.6341 | 0.3939 | 2014/15 |
| 22 | 2014/15 | 0.6341 | 0.4571 | 2015/16 |
| 22 | 2015/16 | 0.5976 | 0.2941 | 2016/17 |
| 22 | 2016/17 | 0.5610 | 0.3125 | 2017/18 |
| 22 | 2017/18 | 0.5366 | 0.4242 | 2018/19 |
| 23 | 2008/09 | 0.4268 | 0.4333 | 2009/10 |
| 23 | 2009/10 | 0.4268 | 0.6053 | 2010/11 |
| 23 | 2010/11 | 0.4146 | 0.3684 | 2011/12 |
| 23 | 2011/12 | 0.4512 | 0.2667 | 2012/13 |
| 23 | 2012/13 | 0.5000 | 0.3939 | 2013/14 |
| 23 | 2013/14 | 0.4512 | 0.3143 | 2014/15 |
| 23 | 2014/15 | 0.5244 | 0.3529 | 2015/16 |
| 23 | 2015/16 | 0.4268 | 0.2059 | 2016/17 |
| 23 | 2016/17 | 0.4878 | 0.2500 | 2017/18 |
| 23 | 2017/18 | 0.6341 | 0.2500 | 2018/19 |
| 24 | 2008/09 | 0.5122 | 0.4865 | 2009/10 |
| 24 | 2009/10 | 0.4756 | 0.4359 | 2010/11 |
| 24 | 2010/11 | 0.5732 | 0.5278 | 2011/12 |
| 24 | 2011/12 | 0.4146 | 0.4194 | 2012/13 |
| 24 | 2012/13 | 0.6250 | 0.3235 | 2013/14 |
| 24 | 2013/14 | 0.6585 | 0.5000 | 2014/15 |
| 24 | 2014/15 | 0.6220 | 0.5000 | 2015/16 |
| 24 | 2015/16 | 0.5610 | 0.4615 | 2016/17 |
| 24 | 2016/17 | 0.5610 | 0.4000 | 2017/18 |

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|---|---|---|---|---|
| 24 | 2017/18 | 0.5366 | 0.4898 | 2018/19 |
| 25 | 2008/09 | 0.4390 | 0.5294 | 2009/10 |
| 25 | 2009/10 | 0.6098 | 0.3939 | 2010/11 |
| 25 | 2010/11 | 0.5244 | 0.4857 | 2011/12 |
| 25 | 2011/12 | 0.5122 | 0.2903 | 2012/13 |
| 25 | 2012/13 | 0.4375 | 0.3714 | 2013/14 |
| 25 | 2013/14 | 0.4512 | 0.5238 | 2014/15 |
| 25 | 2014/15 | 0.2927 | 0.5385 | 2015/16 |
| 25 | 2015/16 | 0.4268 | 0.5556 | 2016/17 |
| 25 | 2016/17 | 0.3659 | 0.6452 | 2017/18 |
| 25 | 2017/18 | 0.3537 | 0.3714 | 2018/19 |
| 26 | 2008/09 | 0.4634 | 0.3500 | 2009/10 |
| 26 | 2009/10 | 0.3293 | 0.4000 | 2010/11 |
| 26 | 2010/11 | 0.3049 | 0.4595 | 2011/12 |
| 26 | 2011/12 | 0.3902 | 0.1935 | 2012/13 |
| 26 | 2012/13 | 0.3958 | 0.6047 | 2013/14 |
| 26 | 2013/14 | 0.3537 | 0.4186 | 2014/15 |
| 26 | 2014/15 | 0.2927 | 0.4211 | 2015/16 |
| 26 | 2015/16 | 0.3780 | 0.3333 | 2016/17 |
| 26 | 2016/17 | 0.5732 | 0.3824 | 2017/18 |
| 26 | 2017/18 | 0.4390 | 0.5385 | 2018/19 |
| 27 | 2008/09 | 0.4146 | 0.4412 | 2009/10 |
| 27 | 2009/10 | 0.5610 | 0.2903 | 2010/11 |
| 27 | 2010/11 | 0.5610 | 0.2759 | 2011/12 |
| 27 | 2011/12 | 0.4878 | 0.1538 | 2012/13 |
| 27 | 2012/13 | 0.5625 | 0.3214 | 2013/14 |
| 27 | 2013/14 | 0.5610 | 0.3571 | 2014/15 |
| 27 | 2014/15 | 0.4878 | 0.5455 | 2015/16 |
| 27 | 2015/16 | 0.5854 | 0.4688 | 2016/17 |
| 27 | 2016/17 | 0.4756 | 0.4324 | 2017/18 |
| 27 | 2017/18 | 0.5488 | 0.3784 | 2018/19 |
| 28 | 2008/09 | 0.5610 | 0.4571 | 2009/10 |
| 28 | 2009/10 | 0.4878 | 0.4412 | 2010/11 |
| 28 | 2010/11 | 0.5000 | 0.4250 | 2011/12 |
| 28 | 2011/12 | 0.4512 | 0.3333 | 2012/13 |
| 28 | 2012/13 | 0.3958 | 0.4773 | 2013/14 |

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|---|---|---|---|---|
| 28 | 2013/14 | 0.4268 | 0.4103 | 2014/15 |
| 28 | 2014/15 | 0.5488 | 0.3750 | 2015/16 |
| 28 | 2015/16 | 0.4268 | 0.4706 | 2016/17 |
| 28 | 2016/17 | 0.5488 | 0.3429 | 2017/18 |
| 28 | 2017/18 | 0.4512 | 0.4839 | 2018/19 |
| 29 | 2008/09 | 0.6463 | 0.5313 | 2009/10 |
| 29 | 2009/10 | 0.6220 | 0.3750 | 2010/11 |
| 29 | 2010/11 | 0.5854 | 0.3448 | 2011/12 |
| 29 | 2011/12 | 0.5244 | 0.4688 | 2012/13 |
| 29 | 2012/13 | 0.5208 | 0.2069 | 2013/14 |
| 29 | 2013/14 | 0.6220 | 0.4054 | 2014/15 |
| 29 | 2014/15 | 0.4878 | 0.4242 | 2015/16 |
| 29 | 2015/16 | 0.5610 | 0.2813 | 2016/17 |
| 29 | 2016/17 | 0.5610 | 0.1379 | 2017/18 |
| 29 | 2017/18 | 0.5488 | 0.2500 | 2018/19 |
| 30 | 2008/09 | 0.5488 | 0.4286 | 2009/10 |
| 30 | 2009/10 | 0.5976 | 0.4359 | 2010/11 |
| 30 | 2010/11 | 0.6585 | 0.3143 | 2011/12 |
| 30 | 2011/12 | 0.6220 | 0.3030 | 2012/13 |
| 30 | 2012/13 | 0.5417 | 0.4865 | 2013/14 |
| 30 | 2013/14 | 0.4390 | 0.4063 | 2014/15 |
| 30 | 2014/15 | 0.5854 | 0.4865 | 2015/16 |
| 30 | 2015/16 | 0.3780 | 0.4359 | 2016/17 |
| 30 | 2016/17 | 0.3659 | 0.4054 | 2017/18 |
| 30 | 2017/18 | 0.3780 | 0.3810 | 2018/19 |

Table 1.9 Calculation of Lagged Turnover Percentage $(t-2)$

| **Time -2** | | | | |
|---|---|---|---|---|
| **Team** | **Season reg. Wins** | **reg. Season Wins %** | **Lag Turnover %** | **Season Turnover** |
| 1 | 2008/09 | 0.5488 | 0.3824 | 2010/11 |
| 1 | 2009/10 | 0.4268 | 0.3636 | 2011/12 |
| 1 | 2010/11 | 0.4878 | 0.4211 | 2012/13 |
| 1 | 2011/12 | 0.4024 | 0.3548 | 2013/14 |
| 1 | 2012/13 | 0.3958 | 0.3824 | 2014/15 |

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|---|---|---|---|---|
| 1 | 2013/14 | 0.4390 | 0.3750 | 2015/16 |
| 1 | 2014/15 | 0.3659 | 0.4444 | 2016/17 |
| 1 | 2015/16 | 0.4268 | 0.3871 | 2017/18 |
| 1 | 2016/17 | 0.4390 | 0.4242 | 2018/19 |
| 2 | 2008/09 | 0.5000 | 0.2973 | 2010/11 |
| 2 | 2009/10 | 0.3902 | 0.5952 | 2011/12 |
| 2 | 2010/11 | 0.4146 | 0.3750 | 2012/13 |
| 2 | 2011/12 | 0.3537 | 0.3529 | 2013/14 |
| 2 | 2012/13 | 0.5000 | 0.4524 | 2014/15 |
| 2 | 2013/14 | 0.5244 | 0.2973 | 2015/16 |
| 2 | 2014/15 | 0.5122 | 0.2903 | 2016/17 |
| 2 | 2015/16 | 0.4146 | 0.4286 | 2017/18 |
| 2 | 2016/17 | 0.6098 | 0.2647 | 2018/19 |
| 3 | 2008/09 | 0.6220 | 0.5000 | 2010/11 |
| 3 | 2009/10 | 0.5854 | 0.3514 | 2011/12 |
| 3 | 2010/11 | 0.4634 | 0.3514 | 2012/13 |
| 3 | 2011/12 | 0.5854 | 0.4063 | 2013/14 |
| 3 | 2012/13 | 0.3958 | 0.3429 | 2014/15 |
| 3 | 2013/14 | 0.4268 | 0.5366 | 2015/16 |
| 3 | 2014/15 | 0.3902 | 0.4737 | 2016/17 |
| 3 | 2015/16 | 0.4634 | 0.4118 | 2017/18 |
| 3 | 2016/17 | 0.3415 | 0.3902 | 2018/19 |
| 4 | 2008/09 | 0.5244 | 0.5000 | 2010/11 |
| 4 | 2009/10 | 0.4634 | 0.3889 | 2011/12 |
| 4 | 2010/11 | 0.5366 | 0.4643 | 2012/13 |
| 4 | 2011/12 | 0.6220 | 0.4865 | 2013/14 |
| 4 | 2012/13 | 0.5417 | 0.3750 | 2014/15 |
| 4 | 2013/14 | 0.5488 | 0.3939 | 2015/16 |
| 4 | 2014/15 | 0.6463 | 0.2667 | 2016/17 |
| 4 | 2015/16 | 0.5610 | 0.2727 | 2017/18 |
| 4 | 2016/17 | 0.5854 | 0.3333 | 2018/19 |
| 5 | 2008/09 | 0.5244 | 0.5143 | 2010/11 |
| 5 | 2009/10 | 0.4634 | 0.3438 | 2011/12 |
| 5 | 2010/11 | 0.5366 | 0.5143 | 2012/13 |
| 5 | 2011/12 | 0.6220 | 0.3529 | 2013/14 |
| 5 | 2012/13 | 0.5417 | 0.4412 | 2014/15 |

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|---|---|---|---|---|
| 5 | 2013/14 | 0.5488 | 0.3667 | 2015/16 |
| 5 | 2014/15 | 0.6463 | 0.4242 | 2016/17 |
| 5 | 2015/16 | 0.5610 | 0.5500 | 2017/18 |
| 5 | 2016/17 | 0.5854 | 0.2647 | 2018/19 |
| 6 | 2008/09 | 0.5366 | 0.4000 | 2010/11 |
| 6 | 2009/10 | 0.5000 | 0.5152 | 2011/12 |
| 6 | 2010/11 | 0.5732 | 0.5000 | 2012/13 |
| 6 | 2011/12 | 0.5732 | 0.3333 | 2013/14 |
| 6 | 2012/13 | 0.4792 | 0.4545 | 2014/15 |
| 6 | 2013/14 | 0.5122 | 0.2414 | 2015/16 |
| 6 | 2014/15 | 0.4024 | 0.3030 | 2016/17 |
| 6 | 2015/16 | 0.5000 | 0.4375 | 2017/18 |
| 6 | 2016/17 | 0.4756 | 0.3947 | 2018/19 |
| 7 | 2008/09 | 0.5488 | 0.3514 | 2010/11 |
| 7 | 2009/10 | 0.5732 | 0.3143 | 2011/12 |
| 7 | 2010/11 | 0.5976 | 0.3636 | 2012/13 |
| 7 | 2011/12 | 0.6220 | 0.4872 | 2013/14 |
| 7 | 2012/13 | 0.7500 | 0.5250 | 2014/15 |
| 7 | 2013/14 | 0.6220 | 0.5128 | 2015/16 |
| 7 | 2014/15 | 0.5244 | 0.2821 | 2016/17 |
| 7 | 2015/16 | 0.5854 | 0.3714 | 2017/18 |
| 7 | 2016/17 | 0.6098 | 0.3889 | 2018/19 |
| 8 | 2008/09 | 0.6098 | 0.3143 | 2010/11 |
| 8 | 2009/10 | 0.6585 | 0.3333 | 2011/12 |
| 8 | 2010/11 | 0.5854 | 0.3548 | 2012/13 |
| 8 | 2011/12 | 0.5122 | 0.4359 | 2013/14 |
| 8 | 2012/13 | 0.5625 | 0.2813 | 2014/15 |
| 8 | 2013/14 | 0.4634 | 0.4242 | 2015/16 |
| 8 | 2014/15 | 0.5488 | 0.2667 | 2016/17 |
| 8 | 2015/16 | 0.6829 | 0.3548 | 2017/18 |
| 8 | 2016/17 | 0.6707 | 0.2143 | 2018/19 |
| 9 | 2008/09 | 0.6463 | 0.3548 | 2010/11 |
| 9 | 2009/10 | 0.4756 | 0.3714 | 2011/12 |
| 9 | 2010/11 | 0.5610 | 0.3125 | 2012/13 |
| 9 | 2011/12 | 0.5976 | 0.4571 | 2013/14 |
| 9 | 2012/13 | 0.5833 | 0.2500 | 2014/15 |

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|---|---|---|---|---|
| 9 | 2013/14 | 0.6585 | 0.4242 | 2015/16 |
| 9 | 2014/15 | 0.5000 | 0.5000 | 2016/17 |
| 9 | 2015/16 | 0.5122 | 0.3243 | 2017/18 |
| 9 | 2016/17 | 0.5366 | 0.5128 | 2018/19 |
| 10 | 2008/09 | 0.5000 | 0.3438 | 2010/11 |
| 10 | 2009/10 | 0.5488 | 0.4848 | 2011/12 |
| 10 | 2010/11 | 0.5244 | 0.2903 | 2012/13 |
| 10 | 2011/12 | 0.4756 | 0.5641 | 2013/14 |
| 10 | 2012/13 | 0.4375 | 0.3333 | 2014/15 |
| 10 | 2013/14 | 0.2561 | 0.5143 | 2015/16 |
| 10 | 2014/15 | 0.2805 | 0.3947 | 2016/17 |
| 10 | 2015/16 | 0.4268 | 0.4103 | 2017/18 |
| 10 | 2016/17 | 0.4024 | 0.4412 | 2018/19 |
| 11 | 2008/09 | 0.6220 | 0.2759 | 2010/11 |
| 11 | 2009/10 | 0.5366 | 0.3438 | 2011/12 |
| 11 | 2010/11 | 0.5732 | 0.3125 | 2012/13 |
| 11 | 2011/12 | 0.5854 | 0.3421 | 2013/14 |
| 11 | 2012/13 | 0.5000 | 0.1250 | 2014/15 |
| 11 | 2013/14 | 0.4756 | 0.2258 | 2015/16 |
| 11 | 2014/15 | 0.5244 | 0.3889 | 2016/17 |
| 11 | 2015/16 | 0.5000 | 0.2667 | 2017/18 |
| 11 | 2016/17 | 0.4024 | 0.3421 | 2018/19 |
| 12 | 2008/09 | 0.5000 | 0.4872 | 2010/11 |
| 12 | 2009/10 | 0.3902 | 0.6098 | 2011/12 |
| 12 | 2010/11 | 0.3659 | 0.3784 | 2012/13 |
| 12 | 2011/12 | 0.4634 | 0.5500 | 2013/14 |
| 12 | 2012/13 | 0.3125 | 0.3548 | 2014/15 |
| 12 | 2013/14 | 0.3537 | 0.4000 | 2015/16 |
| 12 | 2014/15 | 0.4634 | 0.5000 | 2016/17 |
| 12 | 2015/16 | 0.5732 | 0.4688 | 2017/18 |
| 12 | 2016/17 | 0.4268 | 0.4103 | 2018/19 |
| 13 | 2008/09 | 0.5000 | 0.3529 | 2010/11 |
| 13 | 2009/10 | 0.4756 | 0.4118 | 2011/12 |
| 13 | 2010/11 | 0.5366 | 0.3548 | 2012/13 |
| 13 | 2011/12 | 0.3780 | 0.3611 | 2013/14 |
| 13 | 2012/13 | 0.6042 | 0.4167 | 2014/15 |

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|---|---|---|---|---|
| 13 | 2013/14 | 0.5610 | 0.4889 | 2015/16 |
| 13 | 2014/15 | 0.6098 | 0.3902 | 2016/17 |
| 13 | 2015/16 | 0.4634 | 0.4211 | 2017/18 |
| 13 | 2016/17 | 0.5732 | 0.4412 | 2018/19 |
| 14 | 2008/09 | 0.4390 | 0.4146 | 2010/11 |
| 14 | 2009/10 | 0.5366 | 0.4000 | 2011/12 |
| 14 | 2010/11 | 0.3902 | 0.3714 | 2012/13 |
| 14 | 2011/12 | 0.5000 | 0.2258 | 2013/14 |
| 14 | 2012/13 | 0.5208 | 0.2069 | 2014/15 |
| 14 | 2013/14 | 0.4512 | 0.3514 | 2015/16 |
| 14 | 2014/15 | 0.5244 | 0.3500 | 2016/17 |
| 14 | 2015/16 | 0.4634 | 0.3864 | 2017/18 |
| 14 | 2016/17 | 0.5366 | 0.4583 | 2018/19 |
| 15 | 2008/09 | 0.2927 | 0.5625 | 2010/11 |
| 15 | 2009/10 | 0.4146 | 0.5263 | 2011/12 |
| 15 | 2010/11 | 0.5610 | 0.4865 | 2012/13 |
| 15 | 2011/12 | 0.4634 | 0.2973 | 2013/14 |
| 15 | 2012/13 | 0.3750 | 0.5000 | 2014/15 |
| 15 | 2013/14 | 0.5610 | 0.1875 | 2015/16 |
| 15 | 2014/15 | 0.6098 | 0.2973 | 2016/17 |
| 15 | 2015/16 | 0.5610 | 0.2258 | 2017/18 |
| 15 | 2016/17 | 0.5122 | 0.2143 | 2018/19 |
| 16 | 2008/09 | 0.4146 | 0.4444 | 2010/11 |
| 16 | 2009/10 | 0.3659 | 0.3333 | 2011/12 |
| 16 | 2010/11 | 0.4512 | 0.2333 | 2012/13 |
| 16 | 2011/12 | 0.4268 | 0.5556 | 2013/14 |
| 16 | 2012/13 | 0.5417 | 0.5000 | 2014/15 |
| 16 | 2013/14 | 0.4634 | 0.6304 | 2015/16 |
| 16 | 2014/15 | 0.3659 | 0.4118 | 2016/17 |
| 16 | 2015/16 | 0.3537 | 0.3030 | 2017/18 |
| 16 | 2016/17 | 0.4878 | 0.3103 | 2018/19 |
| 17 | 2008/09 | 0.5610 | 0.5000 | 2010/11 |
| 17 | 2009/10 | 0.6341 | 0.4848 | 2011/12 |
| 17 | 2010/11 | 0.5366 | 0.2188 | 2012/13 |
| 17 | 2011/12 | 0.5488 | 0.3333 | 2013/14 |
| 17 | 2012/13 | 0.7500 | 0.4054 | 2014/15 |

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|---|---|---|---|---|
| 17 | 2013/14 | 0.5610 | 0.5250 | 2015/16 |
| 17 | 2014/15 | 0.5854 | 0.3448 | 2016/17 |
| 17 | 2015/16 | 0.5732 | 0.6579 | 2017/18 |
| 17 | 2016/17 | 0.6098 | 0.4706 | 2018/19 |
| 18 | 2008/09 | 0.3902 | 0.4615 | 2010/11 |
| 18 | 2009/10 | 0.5244 | 0.4242 | 2011/12 |
| 18 | 2010/11 | 0.3659 | 0.2581 | 2012/13 |
| 18 | 2011/12 | 0.5000 | 0.3438 | 2013/14 |
| 18 | 2012/13 | 0.3333 | 0.4474 | 2014/15 |
| 18 | 2013/14 | 0.6341 | 0.4444 | 2015/16 |
| 18 | 2014/15 | 0.4756 | 0.5405 | 2016/17 |
| 18 | 2015/16 | 0.4756 | 0.4242 | 2017/18 |
| 18 | 2016/17 | 0.2683 | 0.3030 | 2018/19 |
| 19 | 2008/09 | 0.4390 | 0.3529 | 2010/11 |
| 19 | 2009/10 | 0.4512 | 0.3939 | 2011/12 |
| 19 | 2010/11 | 0.5122 | 0.3939 | 2012/13 |
| 19 | 2011/12 | 0.5122 | 0.5882 | 2013/14 |
| 19 | 2012/13 | 0.4583 | 0.6129 | 2014/15 |
| 19 | 2013/14 | 0.4878 | 0.6061 | 2015/16 |
| 19 | 2014/15 | 0.5000 | 0.3333 | 2016/17 |
| 19 | 2015/16 | 0.6098 | 0.2857 | 2017/18 |
| 19 | 2016/17 | 0.4146 | 0.5000 | 2018/19 |
| 20 | 2008/09 | 0.4878 | 0.3784 | 2010/11 |
| 20 | 2009/10 | 0.4634 | 0.5106 | 2011/12 |
| 20 | 2010/11 | 0.4756 | 0.4194 | 2012/13 |
| 20 | 2011/12 | 0.4268 | 0.4167 | 2013/14 |
| 20 | 2012/13 | 0.5417 | 0.3143 | 2014/15 |
| 20 | 2013/14 | 0.5244 | 0.5152 | 2015/16 |
| 20 | 2014/15 | 0.5610 | 0.2941 | 2016/17 |
| 20 | 2015/16 | 0.4634 | 0.4286 | 2017/18 |
| 20 | 2016/17 | 0.5976 | 0.4000 | 2018/19 |
| 21 | 2008/09 | 0.4878 | 0.3714 | 2010/11 |
| 21 | 2009/10 | 0.5732 | 0.4324 | 2011/12 |
| 21 | 2010/11 | 0.5366 | 0.3529 | 2012/13 |
| 21 | 2011/12 | 0.5854 | 0.4706 | 2013/14 |
| 21 | 2012/13 | 0.3333 | 0.4706 | 2014/15 |

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|---|---|---|---|---|
| 21 | 2013/14 | 0.4634 | 0.3125 | 2015/16 |
| 21 | 2014/15 | 0.5732 | 0.6250 | 2016/17 |
| 21 | 2015/16 | 0.5000 | 0.2759 | 2017/18 |
| 21 | 2016/17 | 0.5000 | 0.3333 | 2018/19 |
| 22 | 2008/09 | 0.5000 | 0.4722 | 2010/11 |
| 22 | 2009/10 | 0.4878 | 0.3438 | 2011/12 |
| 22 | 2010/11 | 0.4634 | 0.2667 | 2012/13 |
| 22 | 2011/12 | 0.5976 | 0.3333 | 2013/14 |
| 22 | 2012/13 | 0.6042 | 0.3939 | 2014/15 |
| 22 | 2013/14 | 0.6341 | 0.4571 | 2015/16 |
| 22 | 2014/15 | 0.6341 | 0.2941 | 2016/17 |
| 22 | 2015/16 | 0.5976 | 0.3125 | 2017/18 |
| 22 | 2016/17 | 0.5610 | 0.4242 | 2018/19 |
| 23 | 2008/09 | 0.4268 | 0.6053 | 2010/11 |
| 23 | 2009/10 | 0.4268 | 0.3684 | 2011/12 |
| 23 | 2010/11 | 0.4146 | 0.2667 | 2012/13 |
| 23 | 2011/12 | 0.4512 | 0.3939 | 2013/14 |
| 23 | 2012/13 | 0.5000 | 0.3143 | 2014/15 |
| 23 | 2013/14 | 0.4512 | 0.3529 | 2015/16 |
| 23 | 2014/15 | 0.5244 | 0.2059 | 2016/17 |
| 23 | 2015/16 | 0.4268 | 0.2500 | 2017/18 |
| 23 | 2016/17 | 0.4878 | 0.2500 | 2018/19 |
| 24 | 2008/09 | 0.5122 | 0.4359 | 2010/11 |
| 24 | 2009/10 | 0.4756 | 0.5278 | 2011/12 |
| 24 | 2010/11 | 0.5732 | 0.4194 | 2012/13 |
| 24 | 2011/12 | 0.4146 | 0.3235 | 2013/14 |
| 24 | 2012/13 | 0.6250 | 0.5000 | 2014/15 |
| 24 | 2013/14 | 0.6585 | 0.5000 | 2015/16 |
| 24 | 2014/15 | 0.6220 | 0.4615 | 2016/17 |
| 24 | 2015/16 | 0.5610 | 0.4000 | 2017/18 |
| 24 | 2016/17 | 0.5610 | 0.4898 | 2018/19 |
| 25 | 2008/09 | 0.4390 | 0.3939 | 2010/11 |
| 25 | 2009/10 | 0.6098 | 0.4857 | 2011/12 |
| 25 | 2010/11 | 0.5244 | 0.2903 | 2012/13 |
| 25 | 2011/12 | 0.5122 | 0.3714 | 2013/14 |
| 25 | 2012/13 | 0.4375 | 0.5238 | 2014/15 |

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|---|---|---|---|---|
| 25 | 2013/14 | 0.4512 | 0.5385 | 2015/16 |
| 25 | 2014/15 | 0.2927 | 0.5556 | 2016/17 |
| 25 | 2015/16 | 0.4268 | 0.6452 | 2017/18 |
| 25 | 2016/17 | 0.3659 | 0.3714 | 2018/19 |
| 26 | 2008/09 | 0.4634 | 0.4000 | 2010/11 |
| 26 | 2009/10 | 0.3293 | 0.4595 | 2011/12 |
| 26 | 2010/11 | 0.3049 | 0.1935 | 2012/13 |
| 26 | 2011/12 | 0.3902 | 0.6047 | 2013/14 |
| 26 | 2012/13 | 0.3958 | 0.4186 | 2014/15 |
| 26 | 2013/14 | 0.3537 | 0.4211 | 2015/16 |
| 26 | 2014/15 | 0.2927 | 0.3333 | 2016/17 |
| 26 | 2015/16 | 0.3780 | 0.3824 | 2017/18 |
| 26 | 2016/17 | 0.5732 | 0.5385 | 2018/19 |
| 27 | 2008/09 | 0.4146 | 0.2903 | 2010/11 |
| 27 | 2009/10 | 0.5610 | 0.2759 | 2011/12 |
| 27 | 2010/11 | 0.5610 | 0.1538 | 2012/13 |
| 27 | 2011/12 | 0.4878 | 0.3214 | 2013/14 |
| 27 | 2012/13 | 0.5625 | 0.3571 | 2014/15 |
| 27 | 2013/14 | 0.5610 | 0.5455 | 2015/16 |
| 27 | 2014/15 | 0.4878 | 0.4688 | 2016/17 |
| 27 | 2015/16 | 0.5854 | 0.4324 | 2017/18 |
| 27 | 2016/17 | 0.4756 | 0.3784 | 2018/19 |
| 28 | 2008/09 | 0.5610 | 0.4412 | 2010/11 |
| 28 | 2009/10 | 0.4878 | 0.4250 | 2011/12 |
| 28 | 2010/11 | 0.5000 | 0.3333 | 2012/13 |
| 28 | 2011/12 | 0.4512 | 0.4773 | 2013/14 |
| 28 | 2012/13 | 0.3958 | 0.4103 | 2014/15 |
| 28 | 2013/14 | 0.4268 | 0.3750 | 2015/16 |
| 28 | 2014/15 | 0.5488 | 0.4706 | 2016/17 |
| 28 | 2015/16 | 0.4268 | 0.3429 | 2017/18 |
| 28 | 2016/17 | 0.5488 | 0.4839 | 2018/19 |
| 29 | 2008/09 | 0.6463 | 0.3750 | 2010/11 |
| 29 | 2009/10 | 0.6220 | 0.3448 | 2011/12 |
| 29 | 2010/11 | 0.5854 | 0.4688 | 2012/13 |
| 29 | 2011/12 | 0.5244 | 0.2069 | 2013/14 |
| 29 | 2012/13 | 0.5208 | 0.4054 | 2014/15 |

| | | | | |
|---|---|---|---|---|
| 29 | 2013/14 | 0.6220 | 0.4242 | 2015/16 |
| 29 | 2014/15 | 0.4878 | 0.2813 | 2016/17 |
| 29 | 2015/16 | 0.5610 | 0.1379 | 2017/18 |
| 29 | 2016/17 | 0.5610 | 0.2500 | 2018/19 |
| 30 | 2008/09 | 0.5488 | 0.4359 | 2010/11 |
| 30 | 2009/10 | 0.5976 | 0.3143 | 2011/12 |
| 30 | 2010/11 | 0.6585 | 0.3030 | 2012/13 |
| 30 | 2011/12 | 0.6220 | 0.4865 | 2013/14 |
| 30 | 2012/13 | 0.5417 | 0.4063 | 2014/15 |
| 30 | 2013/14 | 0.4390 | 0.4865 | 2015/16 |
| 30 | 2014/15 | 0.5854 | 0.4359 | 2016/17 |
| 30 | 2015/16 | 0.3780 | 0.4054 | 2017/18 |
| 30 | 2016/17 | 0.3659 | 0.3810 | 2018/19 |

Table 1.10 General Information

| Team | Ownership | General Manager | Coaches |
|---|---|---|---|
| **TBL** | William Davidson – Palace Sports & Entertainment (1999-2008)<br>Oren Koules & Len Barrie (2008-2010)<br>Jeff Vinik (2010-present) | Jay Feaster (2002-2008)<br>Brian Lawton (2008-2010)<br>Steven Yzerman (2010-2018)<br>Julien BriseBois (2019-present) | John Tortorella (2001-2008)<br>Barry Melrose (Oct 2008)<br>Rick Tocchet (2008-2010)<br>Guy Boucher (2010-2013)<br>John Cooper (2013-present) |
| **DET** | Mike Ilitch (1982-2017)<br>Ilitch Holdings (2018-present) | Ken Holland (1997-2018)<br>Steve Yzerman (2019-present) | Mike Babcock 2005-2015<br>Jeff Blashill (2015-present) |
| **CGY** | Calgary Flames Limited Partnership (1980-presennt) | Darryl Sutter (2003-2013)<br>Brian Burke (2013-2014)<br>Brad Treliving (2014-present) | Darryl Sutter (2003-2005)<br>Jim Playfair (2005-2007)<br>Mike Keenan (2008-2009)<br>Btent Sutter (2010-2012)<br>Bob Hartley (2013-2016)<br>Glen Gulutzan (2017-2018)<br>Bill Peters (2019-present) |
| **EDM** | Edmonton Investors Group Limited Partnership (1998-2008)<br>Daryl Katz (2008-today) | Kevin Lowe (2000-2008)<br>Steve Tambellini (2008-2013)<br>Craig MacTavish (2013-2015)<br>Peter Chiarelli (2015-2019)<br>Keith Gretzky (2019)<br>Ken Holland (2019-present) | Craig MacTavish (2001-2009)<br>Pat Quinn (2010)<br>Tom Renney (2011-2012)<br>Ralph Krüger (2013)<br>Dallas Eakins (2014-2015)<br>Todd Nelson (2015)<br>Tod McLellan (2016-2019)<br>Ken Hitchcock (2019) |
| **BUF** | Tom Golisano & Larry Quinn (2003-2011)<br>Terrence Pegula (2011-today) | Darcy Regier (1997-2013)<br>Pat Lafontaine (2013-2014)<br>Tim Murray (2014-2017)<br>Jason Botterill (2017-present) | Lindy Ruff (1998-2013)<br>Ted Nolan (1996-2015)<br>Ron Rolston (2013-2014)<br>Dan Bylsma (2016-2017)<br>Phil Housley (2018-2019)<br>Ralph Krüger (2020-present) |

Table 1.11 NHL Season Awards

| Trophy/ Award Name | Rewarding Reason |
|---|---|
| **Hart Memorial Trophy** | Most Valuable Player |
| **Lady Byng Memorial Trophy** | Player who "exhibit the best type of sportsmanship and gentlemanly conduct combined with a high standard of playing ability" |
| **Vezina Trophy** | Top Goalie |
| **Calder Memorial Trophy** | Rookie of the Year |
| **Art Ross Trophy** | Top Point Scorer |
| **James Norris Memorial Trophy** | Top Defenseman |
| **Conn Smythe Trophy** | Most Valuable Player in the Stanley Cup Playoffs |
| **Bill Masterton Memorial Trophy** | Qualities of Perseverance and Sportsmanship |
| **Ted Lindsay Award** | Most Outstanding Player as selected by the National Hockey League Players Association (NHLPA); FKA Lester B. Pearson Award |
| **Frank J. Selke Trophy** | Top Defensive Forward |
| **William M. Jennings Trophy** | Goalie(s) with the Fewest Goals Scored Against |
| **King Clancy Memorial Trophy** | Leadership and Humanitarian Contribution |
| **Maurice Richard Trophy** | Top Goal Scorer |
| **Mark Messier Leadership Award** | Exhibiting Best Leadership |
| **Jack Adams Award** | Coach of the Year |
| **Stanley Cup** | NHL Playoff Champion (since 1927) |
| **President's Trophy** | Best Overall Record (Based on Points) |

Source: *Hockey- Reference.com*[226]

[226] https://www.hockey-reference.com/awards/

Table 1.12 Trades Tampa Bay Lightning Preseason 2008/09

| Tampa Bay Lightning acquired (Position of Player) | Date of Trade | Trading Team (acquired) |
|---|---|---|
| Vaclav Prospal (Center) | June 18th, 2008 | *Philadelphia Flyers:*<br>2008 7th round pick (#196 Joacim Eriksson);<br>2009 conditional 4th round pick (if re-sign Prospal), (#93 Alex Hutchings) |
| 2008 4th round pick (#117 James Wright- center)<br>2008 5th round pick (#147 Kyle DeCoste)<br>2009 3rd round pick (#87 Simon Bertilsson) | June 21st, 2008 | *San Jose Sharks:*<br>2008 3rd round pick (#62 Justin Daniels) |
| Gary Roberts (Left-Wing)<br>Rights to Ryan Malone (Left-Wing) | June 28th, 2008 | *Pittsburgh Penguins:*<br>2009 conditional 4th round pick (3rd round if Malone re-signs with TBL), (#63 Ben Hanowski) |
| Rights to Brian Rolston (Center) | June 29th, 2008 | *Minnesota Wild:*<br>2009 or 2010 conditional draft pick (depending on Rolston re-signing with TBL), (2009, #99 Kyle Bigos) |
| Janne Niskala (Defense) | June 30th, 2008 | *Philadelphia Flyers:*<br>2009 6th round pick (#152 David Labreque) |
| Matt Carle (Defense)<br>Ty Wishart (Defense)<br>2009 1st round pick (#26 Kyle Palmieri – Right-Wing)<br>2010 4th round pick (#118 James Mullin) | July 4th, 2008 | *San Jose Sharks:*<br>Dan Boyle<br>Brad Lukowich |
| Andrej Meszaros (Defense) | August 29th, 2008 | *Ottawa Senators:*<br>Filip Kuba<br>Alexander R. Picard<br>2009 1st round pick (# 26 Kyle Palmieri) |
| 2009 conditional pick (6th round if Tarnasky plays 55 games or less in 2008/09, 5th round if Tarnasky plays more than 55 games in 2008/09), (#161 Jaroslav Janus) | September 29th, 2008 | *Nashville Predators:*<br>Nick Tarnasky |

| | | |
|---|---|---|
| Michal Sersen (Defense) | October 1st, 2008 | *Pittsburgh Penguins:*<br>2009 5th round pick (#122 Alex Velischek) |
| Lukas Krajicek (Defense)<br>Juraj Simek (Left-Wing) | October 6th, 2008 | *Vancouver Canucks:*<br>Shane O'Brien<br>Michel Ouellet |

Source: *NHL Trade Tracker TBL 2008/09*[227]

Table 1.13 Awards of Sidney Crosby and Evgeni Malkin

| Sidney Crosby | Evgeni Malkin |
|---|---|
| Art Ross Trophy (2006/07, 2013/14) | Calder Memorial Trophy (2006/07) |
| Hart Memorial Trophy (2006/07, 2013/14) | Art Ross Trophy (2008/09, 2011/12) |
| Ted Lindsay Award (2006/07, 2012/13, 2013/14) | Conn Smythe Trophy (2008/09) |
| Mark Messier Leadership Award (2009/10) | Hart Memorial Trophy (2011/12) |
| Maurice Richard Trophy (2009/10, 2016/17) | Ted Lindsay Award (2011/12) |
| Conn Smythe Trophy (2015/16, 2016/17) | |

Table 1.14 Draft Pick History Edmonton Oilers

| Player | Draft Pick Year |
|---|---|
| Magnus Paajarvi | 2009 (10th) |
| Taylor Hall | 2010 (1st overall) |
| Ryan Nugent-Hopkins | 2011 (1st overall) |
| Nail Yakupov | 2012 (1st overall) |
| Darnell Nurse | 2013 (7th) |
| Leon Draisaitl | 2014 (3rd) |
| Connor McDavid | 2015 (1st overall) |
| Jesse Puljujarvi | 2016 (4th) |

[227] NHLTradeTracker. (2020). *Tampa Bay Lightning 2008/09 Trades*. Retrieved January 2020, from NHL Trade Tracker: http://www.nhltradetracker.com/user/trade_list_by_season_team/Tampa_Bay_Lightning/2008-09/1

Table 1.15 General Manager & Coach Experiences

| General Manager/ Coach | Team | Experience |
|---|---|---|
| Jay Feaster (GM) | TBL | 1989-90 AHL Assistant General Manager for the Hershey Bears<br>1990-1996 AHL General Manager for the Hershey Bears<br>1996-1998 AHL President for the Hershey Bears<br>1998-2001 NHL Assistant General Manager for TBL<br>2001-2008 NHL General Manager, Ex. VP of Hockey Operations for TBL |
| Brian Lawton (GM) | TBL | No prior experience |
| Steve Yzerman (GM) | TBL | 1983-2006 NHL Hockey Player<br>2006-2010 VP of Hockey Operations for DET<br>2006-2010 General Manager for Team Canada<br>2010-2020 NHL General Manager and VP of Hockey Operations for TBL<br>2012-2014 General Manager for Team Canada |
| Barry Melrose (HC) | TBL | 1987-88 WHL Head Coach for the Medicine Hat Tigers<br>1988-1989 WHL Head Coach for the Seattle Thunderbirds<br>1989-1992 AHL Head Coach for the Adirondack Red Wings<br>1992-1995 NHL Head Coach for LAK<br>2003-2006 UHL Franchise Owner from the Adirondack IceHawks/ Frostbite<br>2008 NHL Head Coach for TBL |
| Rick Toccet (HC) | TBL | 1984-2002 NHL Hockey player<br>2002-2004 NHL Assistant Coach for COL<br>2005-2006 NHL Assistant Coach for PHX, now ARZ<br>2008-2009 NHL Assistant Coach for TBL<br>2009-2010 NHL Head Coach for TBL<br>2014-2017 NHL Assistant Coach for PIT<br>2017-2020 NHL Head Coach for ARZ |
| Guy Boucher | TBL | 1996-1997 CIAU Assistant Coach for McGill University<br>1997-2000 QMJHL Assistant Coach for Rouyn-Noranda Huskies<br>2000-2003 QMAA Head Coach for Lac St.-Louis Lions |

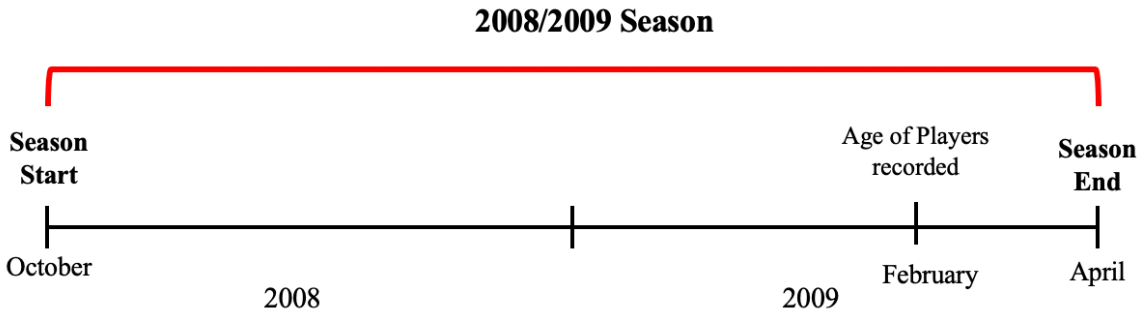
| | | |
|---|---|---|
| | | 2003-2006 QMJHL Assistant Coach for Rimouski Oceanic<br>2006-2009 QMJHL Head Coach for Drummondville Voltigeurs<br>2005-2009 Assistant Coach for Canada U18, in 2008 for U20<br>2009-2010 AHL Head Coach for the Hamilton Bulldogs<br>2010-2013 NHL Head Coach for TBL |
| John Cooper (HC) | TBL | 1998-1999 USHS-MI Head Coach for Lansing Catholic Central<br>1999-2001 CSHL Head Coach for Metro Jets<br>2001-2003 Midget Head Coach for Honeybaked U18<br>2003-2006 NAHL General Manager & Head Coach for Texarkana Bandits<br>2006-2008 NAHL General manager & Head Coach for St. Louis Bandits<br>2008 Assistant Coach for USA U18<br>2008-2010 USHL General Manager & Head Coach for the Green Bay Gamblers<br>2010-2012 AHL Head Coach for the Norfolk Admirals<br>2012-2020 NHL Head Coach for TBL |
| Ken Holland (GM) | DET | 1985-1987 NHL Scout for DET<br>1987-1994 NHL Director of Amateur Scouting<br>1994-1997 AHL General Manager for the Adriondack Red Wings<br>1994-1997 NHL Assistant General Manager for DET<br>1997-2019 NHL General Manager & Ex. VP of Hockey Operations<br>2005, 2009, 2014, 2017 Assistant General Manager for Team Canada |
| Mike Babcock (HC) | DET | 1988-1991 ACAC Head Coach for the Red Deer College<br>1991-1993 WHL Head Coach for the Moose Jaw Warriors<br>1993-1994 CIAU Head Coach for Univ. of Lethbridge<br>1994-2000 WHL Head Coach for the Spokane Chiefs<br>1997 Head Coach for Team Canada U20 (Gold Medalist) |

| | | |
|---|---|---|
| | | 2000-2002 AHL Head Coach for theCincinnati Mighty Ducks<br>2002-2004 NHL Head Coach for the Mighty Ducks of Anaheim<br>2005-2015 NHL Head Coach for DET |
| Darryl Sutter (GM/HC) | CGY | 1979-1987 NHL Player for CHI<br>1987-88 NHL Assistant Coach CHI<br>1988-1990 IHL Head Coach<br>1990-1997 NHL Associated Coach, Head Coach, Team Consultant<br>1998-2003 NHL Head Coach for SJS<br>2003-2011 NHL General Manager & Head Coach (until 2006) |
| Mike Keenan (HC) | CGY | 1977-1979 MJBHL Head Coach for Oshawa Legionaires<br>1980-1983 AHL Head Coach for Rochester Americans<br>1983-1984 CIAU Head Coach for Univ. of Toronto<br>1984-1988 NHL Head Coach for PHI<br>1988-1992 NHL Head Coach for CHI<br>1992-1994 NHL Head Coach for NYR<br>1994-1997 NHL Head Coach & partially General Manager for STL<br>1997-1999 NHL Head Coach for VAN<br>2000-2001 NHL Head Coach for BOS<br>2001-2004 NHL Head Coach for FLA<br>2005-2006 NHL General Manager for FLA<br>2007-2009 NHL Head Coach for CGY |
| Darcy Regier (GM) | BUF | 1984-85 IHL Head Coach for the Indianapolis Checkers<br>1990-1991 NHL Assistant Coach NYI<br>1995-1997 NHL Assistant General Manager for NYI<br>1998-2014 NHL General Manager for BUF<br>2009-2011 AHL General Manager for the Portland Pirates<br>2011-2014 AHL General Manager for Rochester Americans |
| Tim Murray (GM) | BUF | 1993-1994 NHL Scout for DET<br>1994-2002 NHL Scout for FLA<br>2002-2005 NHL Director of Player Personnel for ANA<br>2005-2007 NHL Scout NYR |

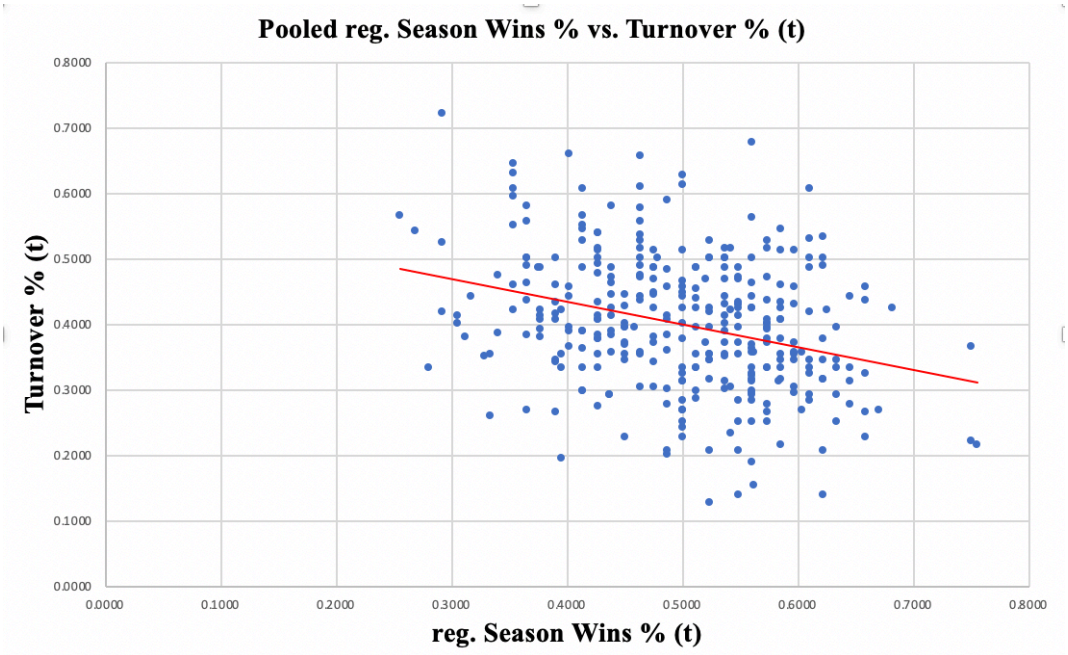
| | | |
|---|---|---|
| | | 2007-2015 NHL Assistant General Manager for OTT<br>2008-2014 AHL General Manager for the Binghamton Senators<br>2015-2017 NHL & AHL General Manager for BUF and Rochester Americans |
| Craig MacTavish (GM) | EDM | 1997-199 NHL Assistant Coach for NYR<br>1999-2000 NHL Assistant Coach for EDM<br>2000-2009 NHL Head Coach for EDM<br>2011-2012 WC Head Coach for Chicago Wolves<br>2012-2013 NHL Sr. VP of Hockey Operations for EDM<br>2013- 2015 NHL General Manager for EDM<br>2015-2019 NHL Sr. VP of Hockey Operations for EDM |
| Ralph Krüger (HC) | EDM | 1989-1990 Germany 2 Player Coach for Duisburger SV<br>1991-1998 Head Coach for VEU Feldkirch in Austria<br>1998-2010 Head Coach for Team Switzerland<br>2011-2012 NHL Assistant Coach for EDM<br>2012-2013 NHL Head Coach for EDM |
| Dallas Eakins (HC) | EDM | 2005-2006 AHL Assistant Coach for Toronto Marlies<br>2006-2009 NHL Assistant Coach for TOR<br>2009-2013 AHL Head Coach Toronto Marlies<br>2013-2015 NHL Head Coach for EDM<br>2015-2019 AHL Head Coach for the San Diego Gulls |

## Graphs

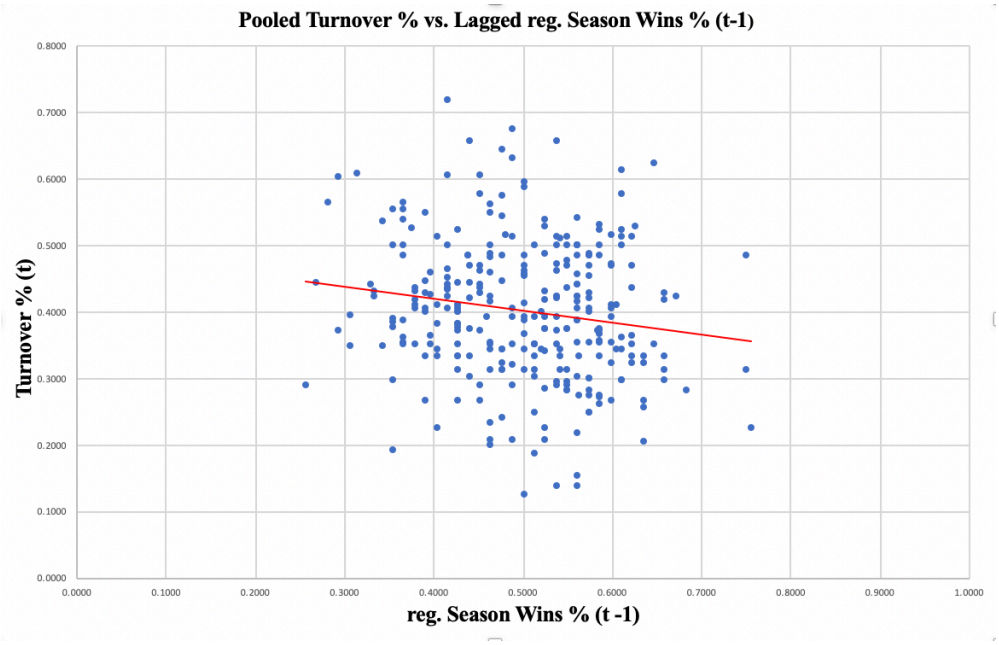
Graph 1.1 Timeline Team Roster Data Collection



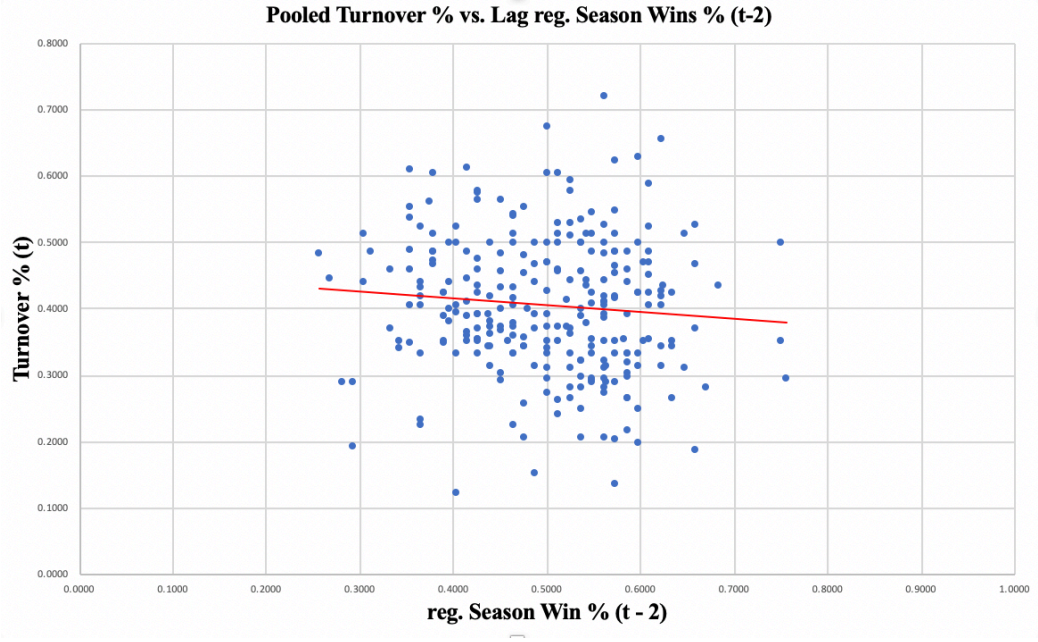

Graph 1.2 Scatter Plot Correlation: reg. Season Win %, vs. Turnover %, pooled



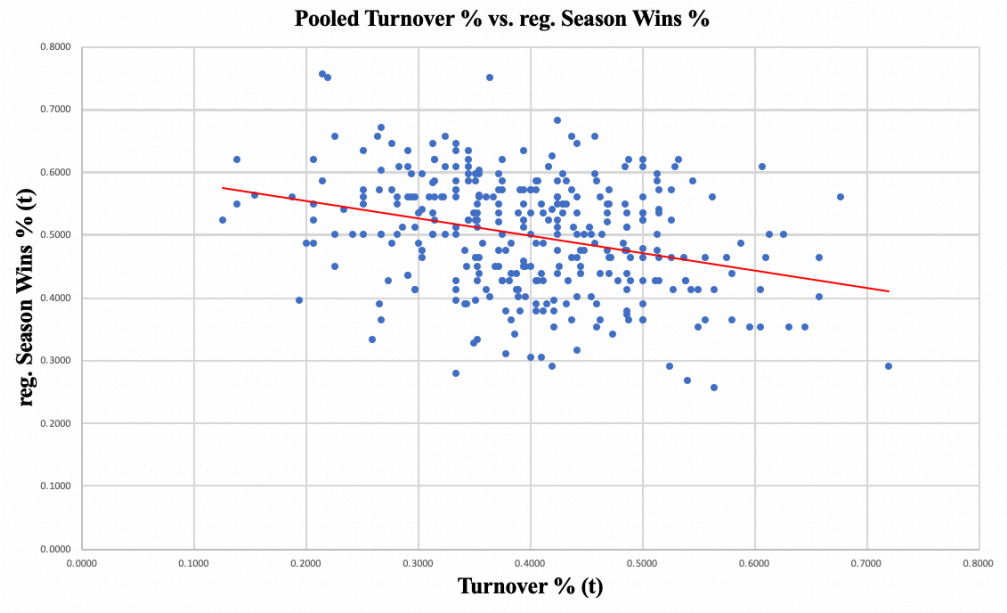
Graph 1.3 Lead-Lag Scatter Plot: Turnover % vs. Lag reg. Season Win % $(t-1)$, pooled



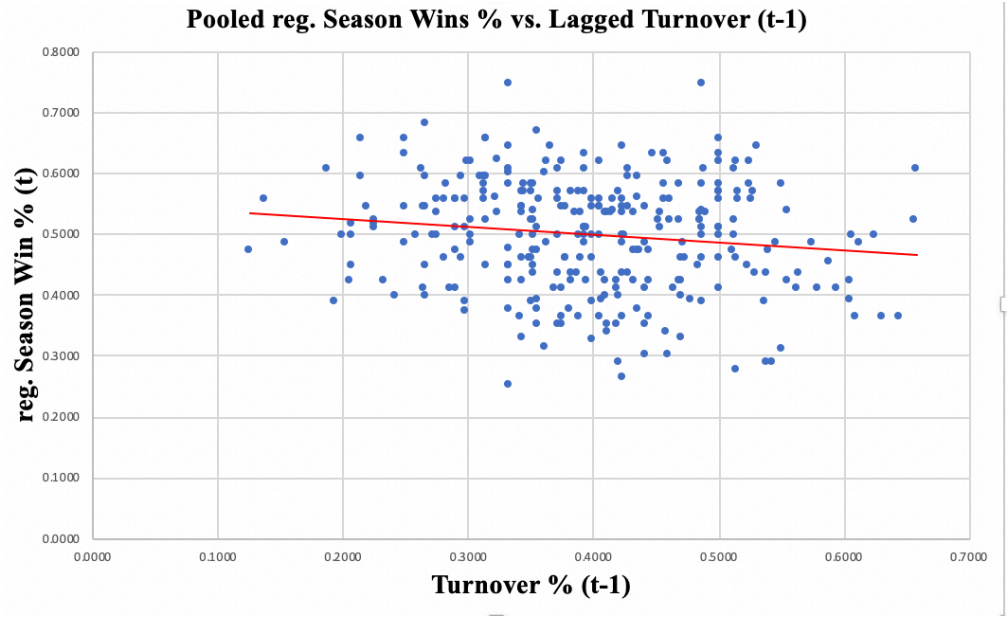

Graph 1.4 Lead-Lag Scatter Plot: Turnover % vs. Lag reg. Season Win % $(t-2)$, pooled



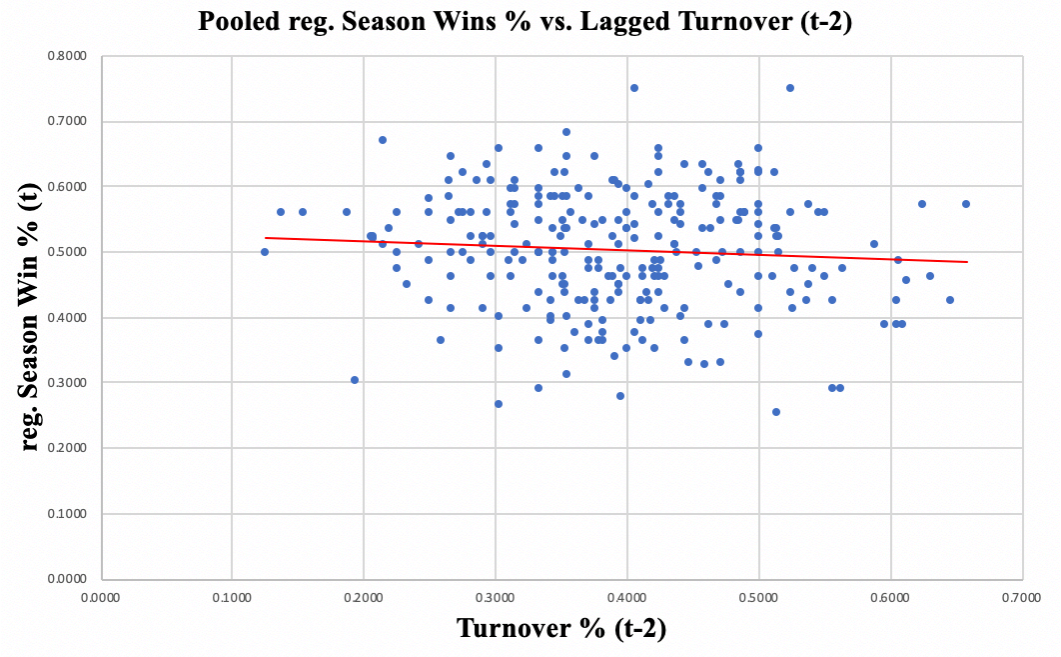
Graph 1.5 Lead-Lag Scatter Plot: reg. Season Win % vs. Turnover %, pooled




Graph 1.6 Lead-Lag Scatter Plot: reg. Season Win % vs. Lag Turnover % $(t-1)$, pooled



Graph 1.7 Lead- Lag Scatter Plot: reg. Season Win % vs. Lag Turnover % $(t-2)$, pooled



# Affidavit

Herewith, I am ensuring that the present honors thesis in the field of business and sociology was independently written and that no other sources were used except for the listed ones in the bibliography. All parts that were taken literally from the literature are cited as such. Additionally, I ensure that I have not submitted this honors thesis to any other examination procedure.

Mendham, May 6th, 2020

City, Date

Signature