

## Artificial Intelligence in Healthcare – Competition (Part Four of a Four-Part Series)

Artificial intelligence (AI) startup companies, AI systems, and overall use of AI within the healthcare industry are developing at an accelerated rate compared to corresponding regulatory efforts.<sup>1</sup> While the need for regulation has prompted concern from the government, the delayed regulation of all forms of AI, including *intelligent automation*, (a software such as AI or machine learning that streamlines decision-making),<sup>2</sup> has benefited competition within the healthcare industry. Intensive regulation of new technology and treatments may serve to delay or disable innovation (such as AI), which may be one of the fundamental drivers of quality improvement and the underlying dynamic of an organization’s ability to compete.<sup>3</sup> In other words, countries who propose AI regulation that is “*too aggressive*,” may limit innovation of AI and are expected to “*fall behind*” economically.<sup>4</sup> Therefore, it is presumed that the relative *absence* of AI regulation, as of the date of publication, may be one of the reasons for the increased innovation and competition among healthcare enterprises. As a result, companies that are using AI or intelligent automation may be privileged to experience increased productivity and job availability, directly impacting the competitive environment of the U.S. healthcare industry.<sup>5</sup> Organizations that cannot afford to invest heavily in AI face a great competitive disadvantage.<sup>6</sup>

Unlike companies that do not use intelligent automation, companies that use intelligent automation for routine tasks may expect to experience increased productivity and creativity among employees.<sup>7</sup> Consequently, as the “*pace of work*” increases, companies will be forced to adopt AI to “*keep up*” and remain competitive in the next few years.<sup>8</sup> As companies use AI to stay competitive, AI usage may create more jobs throughout various departments, because “*when administrative tasks are automated, the demand for jobs that call for soft skills like collaboration, communication and creative problem-solving will grow*.”<sup>9</sup> While numerous reports have predicted that a mass loss of jobs may occur as a result of the presence of AI in the workplace,<sup>10</sup> “*it’s more likely that automation will largely benefit U.S. companies and [human] workers as the entire system becomes more efficient and competitive*.”<sup>11</sup> Integration of AI, in contrast to the replacement of human workers with AI, creates better customer service, which creates a new demand and

“*will ensure that the more competitive American companies of the future will continue to thrive*” as the technology is embraced.<sup>12</sup> Going forward, it will likely be critical for companies to incorporate, in contrast to completely replacing technology with human skill, when seeking a competitive advantage.<sup>13</sup>

In addition to increasing productivity, the integration of AI will likely not increase labor costs - giving companies a competitive advantage both at home and internationally.<sup>14</sup> Currently, the U.S. leads the world in AI, but falls behind other countries in incorporating it within the healthcare industry.<sup>15</sup> President of the People’s Republic of China, Xi Jinping, has focused government efforts toward AI, leading experts to assert that China is surpassing the U.S. as the global AI leader.<sup>16</sup> As intelligent automation impacts this competition among U.S. companies and between the U.S. and other countries, “*jobs that were driven overseas by inexpensive labor will return to the American market*,” a process known as reshoring in which labor costs will be cheaper than that of foreign competitors.<sup>17</sup>

As intelligent automation noticeably reduces costs, whether by performing the more mundane tasks of a company or simply increasing human productivity, the traditional cost barrier to launching and growing a company may decrease, potentially eliminating the disparity between small companies and their larger, more successful competitors.<sup>18</sup> As a result of automating *Internet Technology* (IT) functions, expenses have been estimated to be reduced by 14 to 28 percent.<sup>19</sup> Smaller, more nimble companies are using AI to target market sectors that are often ignored by major corporations; AI is allowing these companies to compete based on the quality of their products.<sup>20</sup> As mentioned by *Innovation Enterprise*, IBM invested billions on its AI platform *Watson*, which was expected to control the healthcare analytics market, but is now losing its lead to competitors that are smaller and more focused, such as *Flatiron Health*, *Synthesys*, and *Quill*;<sup>21</sup> Many of the AI products and services offered by these companies are as good, if not better than *Watson*.<sup>22</sup> Flatiron Health recently challenged *Watson*, “*rais[ing]...\$175 million from Roche Holding and Google Ventures (now GV) to further develop its OncologyCloud platform*.”<sup>23</sup> Like *Watson*, Flatiron Health collects oncology-based data from sources such as doctor’s notes, medical journals, publications, clinical research, laboratory reports, and

hospital EMRs - and provides instruction based on the information.<sup>24</sup> Through acquisitions, IBM has reduced some of the competition by buying companies with similar AI interests.<sup>25</sup> More acquisitions are to be expected; in a recent comparison, “a total of 34 artificial intelligence startups were acquired in the first quarter of this year, more than twice the amount of activity in the year-ago quarter.”<sup>26</sup>

Despite rhetoric to the contrary,<sup>27</sup> AI does not serve as a replacement, but as a productivity tool to “level the playing field” thereby augmenting competition among companies, allowing smaller companies to compete with the more successful, larger companies that once controlled the healthcare market.<sup>28</sup>

In summary, the increased presence of AI in the U.S. has had a significant, discernable impact on the healthcare reimbursement environment, regulatory efforts, technological advancements, and competition among companies. Although federal and state governments are not currently reimbursing for its use, the greatest effect of AI on the U.S. healthcare industry in an

era of reform may be in its ability to help providers efficiently bill for healthcare services.<sup>29</sup> AI is also expected to help protect providers and patients in the current age of big data analytics, by preventing security risks and the threat of patient data breaches.<sup>30</sup> Recent advances in AI systems have made regulating the healthcare delivery system even more challenging;<sup>31</sup> government lawmakers and regulators will necessarily have to “catch up” to, and evolve with, this technology.<sup>32</sup> Elon Musk, CEO of *Tesla* and *SpaceX*, recently urged governors to be more proactive in regulating AI, asserting, “I think by the time we are reactive in AI regulation, it’s too late.”<sup>33</sup> However, this absence of regulation of AI may very well be the cause of augmented technological innovation. A greater number of healthcare companies, big and small, have invested in AI, and experts anticipate this trend to continue through 2017,<sup>34</sup> creating the momentum for even more to follow; those that do not adopt AI will surely risk being left behind their competition.<sup>35</sup>

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