Using Digital Evolution and Corporate Evolution as examples you can see below how these are then developed into specific risks & opportunities at the level of the functions where specific mitigations are applied and managed.

For Digital Evolution

Risk / development:
An increasingly accelerating digital evolution raises the importance of digital data, their respective integrity and the dependence on equivalent information technology. Gathering of data and data volume multiplies, availability rises and with it opportunities as well as vulnerabilities and challenges. Associated legal risks and evolving guidelines add to these challenges. The existing value chain/ business model as well as the operational processes are challenged.

Risk/ development drivers:
- Technological progress
  (Exponential growth of data, Computing power)
- Proprietary technology as a competitive advantage
- Societal changes
- Globalization
**GROUP LEVEL**  How does this risk/ development affect Roche’s business model? (non-exhaustive enumeration)

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Risks (Threats)</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ Faster access to data and information</td>
<td>♦ Hacking of data, compromised data</td>
</tr>
<tr>
<td>♦ Faster/ early PHC (due to more data availability)</td>
<td>♦ Shift in ownership of data (from Roche to others)</td>
</tr>
<tr>
<td>♦ New business opportunities/ units through integration of modern IT</td>
<td>♦ Manipulation or publication of personal private Roche employee data</td>
</tr>
<tr>
<td>♦ Digital platforms for training and disease awareness ... etc.</td>
<td>♦ Failure adapting to regulatory changes/ uncertainties regarding regulation (e.g. data privacy, new regulation) ... etc.</td>
</tr>
</tbody>
</table>

**UNIT LEVEL**  How does this risk/opportunity affect your unit/ function/ department business model?

*(To be completed by the Unit’s Risk Managers; may be in contraction to – the above – GROUP LEVEL)*

*Example for illustrative purposes only; e.g. for Diabetes Care*

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Risks (Threats)</th>
</tr>
</thead>
</table>
| ♦ Diabetes Care (DC): First entrant into cloud-based IT ... etc. | ♦ DC: Manipulation of data by competitor  
DC: Shift of ownership of data to technology company  
♦ Attack on patient data makes study invalid/ delay to market ... etc. |
For Corporate Evolution:

Risk / development:
Rapid globalization increasingly exposes corporations to a growing complexity in their business environment (e.g. variety of products, complex supply chains, emerging legislations and standards, geographies, cultures, or changing shareholder expectations).

Risk/ development drivers:

Technological progress
- Changing stakeholder expectations
- (potential employees/talents, shareholders)
- Agility of the company (are we nimble enough to remain competitive)

- Societal changes
- Globalization
GROUP LEVEL  How does this risk/ development affect Roche’s business model? (non-exhaustive enumeration)

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Risks (Threats)</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ Reduction of costs</td>
<td>♦ Higher dependence on 3rd parties</td>
</tr>
<tr>
<td>♦ Improvement of resource utilization (talent)</td>
<td>♦ Loss of oversight and control due to increased outsourcing</td>
</tr>
<tr>
<td>♦ Enhancement of work/ life balance</td>
<td>♦ Compliance issues (if company does not adapt)</td>
</tr>
<tr>
<td>♦ Crowd sourcing (use the wisdom of crowds) ... etc.</td>
<td>♦ Reputation risk, due to reduced ability to influence 3rd parties</td>
</tr>
<tr>
<td></td>
<td>♦ Not meeting increased societal and governmental expectations ... etc.</td>
</tr>
</tbody>
</table>

UNIT LEVEL  How does this risk/opportunity affect your unit/ function/ department business model?

(To be completed by the Unit’s Risk Managers; may be in contraction to – the above – GROUP LEVEL)

Example for illustrative purposes only; e.g. for Diabetes Care

<table>
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<th>Opportunities</th>
<th>Risks (Threats)</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ More collaborations and partnerships driving more effective solutions to address patient access challenges... etc.</td>
<td>♦ 3rd Party Supplier does not follow Roche Code of conduct and compromises Roche reputation ... etc.</td>
</tr>
</tbody>
</table>
**Description of risk, as reported in the public domain**

As part of the Roche Business Sustainability Risk Assessment process, Digital Evolution has been named as one of the top 5 emerging risk areas. Included in this emerging risk topic is Cyber Attacks / Inadequate strategies for Cloud, mHealth (use of mobile devices), eHealth (use of electronic devices) and social media. The example provided here focuses on Digital Media risks.

- Prohibited promotion to the public
- Hyperlinks to areas / sites containing product information (Bayer Case)
- Includes Blogs with log ins / gated portals (HCP Portals with Logins)
- Websites and other digital platforms (e-commerce) and apps (uncontrolled content)
- Legacy content exists and how to govern this is a challenge
- Prohibited promotion to the public
- Opportunity Cost of poorly designed digital Touchpoints (e.g. Clinical Trial Websites)

**Potential business impact of the risk, as described in the public domain**

Business impacts of this risk include;

- non-compliance for information to Health Care Professional's, resulting in fines or warning letters;
- pharmacovigilance risks due to lack of reporting of side effects with potential fines or warning letters;
- failure to adapt to new patient centric models may lead to denial of reimbursement and loss of sales;
- imperfect brand protection may lead to loss of business,
- non optimized crisis management could lead to loss of business.
Mitigating actions, as described in the public domain

The risk mitigating actions (described publicly) include establishment of a Digital Governance Network Board (DGN) and development of a Roche Directive Legal Compliance Digital Channels document to help employees use digital media platforms in a responsible way (see Internet and Social Media Guidelines and Roche Directive Legal Compliance Digital Channels). We also share digital media best practices (e.g. at conferences such as Corporate Risk Minds and internal Knowledge Sharing Webinars e.g. quarterly Digital Innovation Webinar with >1400 subscribed users. And via an internal G+ Digital Innovation Group.).

Yearly Digital Risk Assessment Workshops and quarterly follow-up meeting (DGN)

Supporting evidence from the public domain on risk, business impact and mitigating actions

Cyber Risks conversations that help Boards: short version (url embedded)
Comment You Tube video, highlighting the importance of cyber risks. Published on 8 Apr 2016

Comment EY example of general information in public domain regarding regulatory and legal risk in the digital world

Managing risks in a digital economy (url embedded)
Comment PWC example of general information in public domain that address business impacts of digital risks
Description of risk, as reported in the public domain

As part of the Roche Business Sustainability Risk Assessment process, Corporate Evolution has been named as one of the top 5 emerging risk & opportunity areas. Included within this risk area is the increased dependence on 3rd parties and interactions with them, which may potentially lead to improper advantage granted or unlawful promotion (differentiate between e.g. CROs, Distributors, Mktg. Providers, Agencies, Travel Agencies). Risks can arise from any of the following:

- Insufficient Systems and processes
- Insufficient Monitoring
- Insufficient Training and support
- Insufficient Standard
- Financial/Economic Discussions with HCPs, Hospitals, and Practice Managers (NA)
- Medical Affairs/Health Economics -Research Activities With Healthcare Institutions/Payers

Potential business impact of the risk, as described in the public domain

- Fines
- Criminal sanctions
- Corporate liability
- Media / reputation
- Interruption of business with public entities
Mitigating actions, as described in the public domain

Healthcare compliance governance established for Interactions with 3rd Parties
- Risks/gap analysis
- Development of a training concept for 3rd parties
- Develop agreed governance/tools
Roche offers online proactive supplier training on Roche Supplier Code of Conduct (see Roche Supplier Website www.roche.com/suppliers)
Roche offers anti-corruption compliance documentation & questionnaires for suppliers and drives /monitors an anti-corruption compliance program (www.roche.com/businesspartners)
100% of business critical suppliers are risk assessed each year (www.roche.com/goals_performance)

Supporting evidence from the public domain on risk, business impact and mitigating actions

2015 Stakeholder engagement examples (url embedded)
Comment (Roche document) In order to understand and mitigate potential risks involving 3rd party relationships, awareness of stakeholder engagement activities are critical.

ISG Third Party Supplier Risk Management (url embedded)
Comment Example of general information in public domain that address business impacts of vendor risks

Our supplier KPI and targets (url embedded) Comment The Roche supplier objectives are aligned with the Roche Group strategy and include key performance indicators and targets.
PWC Third Party Risk Management (url embedded)
Comment Examples of general information in public domain that address business impacts of vendor risks

Suppliers and service providers (url embedded)
Comment The Roche Suppliers website contains valuable information on risk management and mitigation. In the Goals section we publish our KPIs that we risk-assess 100% of our critical suppliers year-on-year, and that we conduct supplier sustainability audits. In 2015, we conducted 182 such audits, in addition to 772 supplier quality audits. This monitoring gives us on-site information about the situation at our critical suppliers.

The Roche Suppliers website (url embedded)
Comment Roche supplier objectives are aligned with the Roche Group strategy and include key performance indicators and targets.

Three Questions for Managing Third-Party Risk (CFO 2015) (url embedded)
Comment Example of general information in public domain that address business impacts of vendor risks